

SPECIAL **EatingWell** EDITION

The DASH Diet

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The DASH Diet



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Parts of this special edition were previously published.

This book is for general information purposes only, and nothing contained in it is intended to substitute for individualized advice from a physician or other health professional. The reader should consult the appropriate health professional in matters relating to physical and mental health and particularly with respect to any symptoms that may require diagnosis or treatment.



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A DIET TO KEEP YOU HEALTHY

The DASH diet, which is intended to stave off hypertension, is one of the world's healthiest diets. Here's why it works and how to follow it.

BY NOVELLA LUI, RD, MHS^c

According to the USDA Dietary Guidelines for Americans (DGA), 45 percent of Americans have hypertension (high blood pressure), including 55 percent of adults between 40 and 59 years old. The prevalence of hypertension is even higher in adults over 60, with 75 percent of that population living with the condition. Hypertension does not display obvious symptoms and is perceived as a silent killer. When left untreated, hypertension may increase the risk of heart failure, stroke and kidney disease. The DASH (Dietary Approaches to Stop Hypertension) diet is one of the well-known methods to manage high blood pressure, but how effective is it?

The American Heart Association defines normal blood pressure as a systolic (upper) blood pressure of less than 120 mm Hg and a diastolic (lower) blood pressure of less than 80 mm Hg. Outside of the normal range, there are four other classifications: elevated blood pressure, hypertension (stage 1), hypertensive (stage 2) and hypertensive crisis.

Several factors can increase the risk of high blood pressure, including excessive sodium consumption, a lack of physical activity, poor sleep quality, alcohol intake and a diet high in saturated fats, trans fats and sweets.

There are no apparent symptoms of elevated blood pressure, and people often find out that they have high blood pressure through their annual check-ups at their primary care provider's office. Lowering blood pressure decreases the risk of heart disease, stroke and death.

THE HISTORY OF THE DASH DIET

Recognizing that dietary measures could decrease blood pressure levels, the National Institute of Health (NIH) in 1992 funded a project to address hypertension through what an individual consumes. That led to the creation of the DASH diet, which has proven to delay hypertension and increase the effectiveness of medications lowering blood pressure.

The original clinical trial of the DASH diet was published in the *New England Journal of Medicine* in 1997, noting that the systolic blood pressure and the diastolic blood pressure could be reduced by 11.4 mm Hg and 5.5 mm Hg, respectively, through diet interventions in individuals with hypertension and those with normal blood pressure. Since then, various trials and studies have consistently shown that the DASH diet effectively reduces blood pressure and yields many other health benefits. As a result of the diet's effectiveness, it has increased



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in popularity over the years, with the endorsement from the DGA for its efficacy in reducing the risk of cardiovascular disease.

As more research consistently shows that the DASH diet is effective at improving blood pressure and offering desirable health benefits, such as weight loss, health care professionals regarded the diet as the top recommended diet to complement other interventions, such as blood pressure medications, exercise and smoking cessation plans. In annual rankings of “best diets,” *U.S. News and World Report*, the DASH diet has ranked first or second every year since 2010.

According to the NIH’s National Heart, Lung and Blood Institute, the DASH diet is a heart-healthy, balanced and flexible meal pattern that anyone can follow. The diet emphasizes eating foods rich in potassium, calcium and magnesium.

The DASH diet may be effective because it steers away from foods high in excess sodium and saturated fat.

The combination of higher amounts of these minerals, along with fiber and lowered sodium, all work together to reduce and control blood pressure, glucose metabolism and insulin response.

The DASH diet focuses on fresh and minimally processed foods and leans more heavily on vegetables, fruits,

whole grains, low-fat or fat-free dairy products, lean meats (think poultry or fish), legumes, nuts and seeds, as well as using plant-based oils such as olive oil.

Certain foods have stronger links to hypertension, so following the DASH diet means being mindful of saturated fats found in full-fat dairy products, fatty meats and tropical oils such as palm kernel and coconut oils. Also keep an eye out for sweets and beverages with hefty added sugar and foods that have a higher salt intake. The DASH diet also recommends explicitly lowering salt intake to 2,300 mg daily, equivalent to one teaspoon of salt. Reducing the sodium intake to 1,500 mg per day may provide further health benefits, especially in populations with risk factors for elevated blood pressure.

The DASH diet improves one’s health in various ways, but how it does this is not fully understood.

“In principle, diet therapy is the preferred initial approach [in managing] hypertension,” says Frank Sacks, MD, professor of cardiovascular disease prevention, department of nutrition of Harvard School of Public Health, professor of medicine at Harvard Medical School, and attending physician at Brigham and Women’s Hospital in Boston.

A 2021 research paper published in *Nutrients* suggests that the DASH diet may offer protective effects, positively influencing different physiological mechanisms from increasing antioxidant activity to reducing inflammation. The DASH diet may also be effective because it steers away from processed foods, which are often salt heavy, and fewer saturated fats. Those fats could increase your risk of cardiovascular disease, and research shows that more saturated fat in your diet could potentially edge out those known healthy unsaturated fats.

Dr. Sacks adds that not only can the DASH diet lower blood pressure, but it may also lessen the rise in blood pressure with age. Connie Elick, MS, RD, instructor of health-supportive culinary arts at the Institute of Culinary Education in New York, adds, “Taking action through nutrition and lifestyle changes...could in some cases delay or prevent the use of medications to control blood pressure and may help others to decrease the amount of medication.”

Research suggests that the DASH diet alone may be less effective in managing blood pressure and heart disease in patients over 50 years and older due to vascular aging, a condition where the arteries lose their elasticity due to age and damage. If the DASH diet is adopted as prevention and at the early onset of hypertension, it may prevent or delay the onset of atherosclerosis and heart disease like a heart attack.

A 2021 systematic review in *Frontiers in Nutrition* suggested that modified DASH diets may contain more or less specific nutrients, which might be more effective in improving diet adherence among all people, including those with contradictory diets due to culture. The same group of researchers noted that these modified diets might be easier to follow and offer similar health benefits, such as reduced blood pressure. Still, the benefits may vary based on age, gender and the



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such as Mediterranean, plant-based, low-fat, high-protein and more, researchers are still determining exactly how effective these diets are in addressing heart disease. The DASH diet is designed to be more specific than the Mediterranean and vegetarian diets, which allows researchers to determine its efficacy more accurately. Nonetheless, more large-scale research is needed to draw a more evident conclusion.

For all its proven effectiveness, the DASH diet is not a fail-safe, nor is it all-powerful. Despite following a low-sodium diet, not everyone experiences changes in blood pressure, suggesting that some people may be more sensitive or resistant to salt intake than others.

The DASH diet alone may not be enough to reduce blood pressure and other risks. (And as a diet high in potassium and calcium, it carries some of its own risk, notably for those with end-stage kidney disease.) Having a team of health care providers, such as doctors, nurses, pharmacists and dietitians, using a multi-pronged approach to improve

specific changes made to the diet.

Consuming no more than one teaspoon of sodium may mean limiting salt in cooking and at the table and avoiding consuming highly processed foods loaded with salt. On the other hand, sticking to no more than two-thirds of a teaspoon may require adjusting one's palette and food preferences, including how to flavor foods without using table salt and knowing where to find reduced-sodium food options.

While there are many healthful diet approaches,

one's health outcomes may be more effective. This approach may include a combination of diet interventions, regular physical activity, managing stress, abstaining from alcohol, stopping smoking or not starting smoking, and taking medications where needed. You should speak with a primary care provider or a registered dietitian before changing your diet and lifestyle.

Still, the evidence is in, and has been for years. As Dr. Sacks says: "As long as [the DASH diet] is optimally followed, it has wide-ranging benefits." ●



Feed Your Heart

Certain vitamins and minerals play a role in keeping your heart healthy and thriving. Here's the research behind healthy DASH diet choices.







THE SCIENCE OF HEART HEALTH

Understanding the science behind good heart health equips us to preserve and protect it.

BY GABRIELLE MCPHERSON, MS, RDN, LDN

Everyone experiences heart-to-heart talks, a change of heart, a heavy heart and sometimes heartbreak. Those common phrases have the ring of metaphor, but all too often we give little attention to our actual hearts. It's not uncommon to be dismissive of pressure, chest discomfort or even pain until something goes wrong. Maybe your heart health is at the forefront of your mind because you or a loved one has experienced a heart health scare or worse. Cardiovascular diseases (CVDs) have notoriously been the leading cause of death globally for the past two decades. In the U.S., one in every three deaths is attributable to CVD.

Beating 100,000 times and pumping 2,000 gallons of blood daily, the heart has a never-ending workload. The cardiovascular system comprises the heart, blood and blood vessels (arteries, veins and capillaries). Without the heart, it wouldn't be





possible for blood to travel to your organs, cells and tissues, supplying oxygen and nutrients critical for life. Your heart is the most essential and integral member of the cardiovascular system, responsible for the entire body's livelihood, so protecting heart health should be a top priority.

ROADBLOCKS TO HEART HEALTH

Many factors can get in the way of maintaining good heart health by interfering with healthy heart function. "High cholesterol, high blood pressure, diabetes, obesity, an unhealthy diet, emotional stress, physical inactivity and smoking are some of the top risk factors for developing heart disease," says Aseem Desai, MD, a cardiologist with Providence Mission Hospital in Mission Viejo, California. High cholesterol, specifically high low-density lipoprotein cholesterol (LDL), also known as "bad" cholesterol, doubles the risk of heart disease, per the Centers for Disease Control (CDC).

"With high cholesterol, you can develop fatty deposits in blood vessels, eventually making it difficult for blood to flow properly," says Trent Orfanos, MD, ABIHM, director of Integrative and Functional Cardiology at Case Integrative Health in Chicago.

If you live with heart conditions, taking steps to better health may feel like an uphill task. Still, many of these are within our power to improve.

Another health condition that significantly increases your chances of heart disease is high blood pressure, known in the medical world as hypertension. Dr. Orfanos explains the vital link between high blood pressure and heart disease: "With high blood pressure, you increase how hard your heart must work, leading to stiffening of the muscle."

Like high cholesterol and high blood pressure, diabetes and obesity also make you more prone to poor heart health. Compared to people without diabetes, people with diabetes are two to four times as likely to have heart disease. That's because, in diabetes, elevated blood sugars damage blood vessels, disrupting blood flow and weakening nerves the heart depends on to function.

A 2021 statement from the American Heart Association (AHA) discusses obesity and its direct contribution to CVD risk factors such as diabetes

and high blood pressure. Obesity creates a greater demand for blood to supply nutrients and oxygen to the body, requiring more blood pressure to move the blood where it needs to go. "Our risk of developing heart disease is based on a complex interplay between our lifestyle choices, genetics, and environment," says Nicole Harkin, MD, FACC, founder of Whole Heart Cardiology in San Francisco. If you live with heart conditions, taking steps to better health may feel like an uphill task. Still, many of these are within our power to improve. "One major controllable risk factor is a sedentary lifestyle. Research has suggested that in terms of cardiovascular health, a lack of exercise is as bad as or possibly even worse than smoking cigarettes," says Christopher Hanifin, a physician's assistant and professor at Seton Hall University in South Orange, New Jersey. CDC data states sedentary lifestyles (fewer than three bouts of physical activity per week and/or less than 20 minutes) are a reality for 25 percent of American adults, and a growing body of evidence supports its harmful effects on the heart.

THE GENETICS IMPACT

Age, sex and genetics are uncontrollable risk factors influencing heart health, says Dr. Harkin. "If you have a first-degree relative (which is a mother, father or sibling) who has suffered a heart attack, you are considered at an elevated risk of your own episode," says Dr. Orfanos. He gives an inside look into what happens during a heart attack. "A heart attack, or myocardial infarction, happens when a blockage occurs in an artery, preventing blood flow to the heart. When your heart doesn't get enough oxygen, it becomes damaged, and a portion of it can die without prompt restoration of blood flow. A number of things can cause this, but generally is due to a buildup of substances leading to plaques that become inflamed, unstable and suddenly clot off, causing a heart attack." While you can't control your genes, knowing your family history can help you become more aware of your likelihood of CVDs. Discussions about family health history can help save lives through prevention.

Still, even if CVDs run in your family, that doesn't mean you're destined for heart troubles. A 2016 study in the *New England Journal of Medicine* determined how much lifestyle changes offset coronary artery disease (CAD), a type of heart disease



where plaque builds up in the arteries, even when the genetic stakes were high. Four studies involved 55,685 adults, who were followed for a 19-year average. Genetically high-risk participants had a 91 percent greater risk for heart disease than those with a low genetic predisposition. Yet the study findings showed healthy lifestyles (living smoke-free, having a healthy weight, eating a healthy diet and exercising) were associated with a 50 percent lower risk of CAD, even among those with higher genetic risks.

That said, we may have even more power over our heart health than we once believed. “It’s easy to blame genetics and family history for the majority of the risk. This is wrong. Remember that many of these genetic factors have on and off switches that you have control over. You can turn the good genes on and turn the bad ones off. A lot of that has to do with lifestyle—diet, exercise, environment and supplements,” says Dr. Orfanos.

STAYING AHEAD

Today’s culture thrives off convenience, driving many people to choose foods with little nutritional value. The American diet is laden with sodium, added sugars and saturated fats. And paired with a sedentary lifestyle, it’s a perfect storm for chronic diseases. To help, the Dietary Guidelines for Americans point to the Mediterranean and Dietary Approaches to Stop Hypertension (DASH) diets. Heart-healthy plans like these share bottom-line advice, eat whole foods and minimize ultraprocessed foods. Diet adherence isn’t always practical for all people. The AHA offers simple, science-backed guidelines emphasizing an overall healthy dietary pattern prioritizing fruits and vegetables, whole grains, healthy protein sources (including plant proteins), low-fat dairy and liquid nontropical vegetable oils. Fruits and vegetables are loaded with nutrients like



flavonoids, vitamin A, vitamin C and carotenoids that may work synergistically to reduce chronic diseases and help manage body weight, according to a large body of evidence.

Dietary fiber, another essential plant nutrient, can help improve heart function by helping you feel fuller for longer, leading to lower calorie intake and weight loss. Long studied, fiber has shown promise in lowering LDL and total cholesterol. A 2017 study published in the *Journal of Chiropractic Medicine* researched 31 meta-analyses (studies examining trends) to discover that people eating the most fiber had a 7 to 24 percent lower risk of CAD and stroke and a 17 to 28 percent lower risk of dying from CVDs.

You can stock up on different types of dietary fiber with produce and whole grains (brown rice, oats, popcorn, whole wheat tortillas). Moreover, plant protein foods such as beans, lentils, peas, nuts and seeds are also brimming with fiber and associated with a lower risk of developing diabetes, stroke and heart disease, according to a 2020 study published in the *BMJ*. Studies report that saturated fats increase LDL cholesterol, promoting further heart problems. “Research shows that saturated fat can cause cardiac remodeling leading to irregular heartbeats like atrial fibrillation, cause plaque to form in the arteries, and may negatively impact insulin resistance,” says Michelle Routhenstein,



cardiology dietitian at Entirely Nourished in Queens, New York. Routhenstein informs us of other inherent sources of saturated fats, “butter, high-fat dairy and red meat, but they can also be found in vegan foods that contain palm oil, coconut oil and coconut products. “Randomized studies have shown strong evidence that replacing saturated fats with polyunsaturated fats lowers LDL cholesterol and drops CAD risk by 10 percent. Try swapping high-fat processed meats like sausage, bacon and fried meats for fish. Omega-3 fatty acids are polyunsaturated fat found in impressive amounts in cold-water fatty fish (salmon, tuna and sardines). If fish doesn’t pique your interest, you

can opt for walnuts, flaxseeds, omega-3-rich eggs, avocados or supplements for omega-3s (though choosing food over supplements is always best). Many studies link omega-3s with lower triglyceride (a type of fat that circulates in the blood) and increased high-density lipoprotein (HDL) cholesterol levels (“good” cholesterol). HDL cholesterol is critical to heart protection by removing excess amounts of cholesterol. Preparing foods with heart-healthy cooking oils like olive, avocado and canola in place of coconut oil and butter can help.

While exercise and healthy eating steal the spotlight when pursuing positive lifestyle changes, managing stress is often overlooked. Stress can cause people to engage in unhealthy lifestyles, including eating poorly, drinking alcohol and smoking. “In order to get on a path to a healthier heart, people need to manage stress by practicing things like yoga, meditation and self-care,” says Sanul Corrielus, MD, MS, MBA, FACC, a board-certified integrative cardiologist with Corrielus Cardiology in Philadelphia.

Staying ahead of your heart health means regularly seeing your medical provider. Lab tests are available to inform your 10-year risk of heart disease development. “Tests that provide your doctor with a more complete picture of your heart health include initial blood tests, along with a chest x-ray. These results, paired with an electrocardiogram which records your heart’s electrical signals, can help your doctor see if your heart is beating too fast, too slow, irregularly, or skipping beats,” says Dr. Desai. Dr. Orfanos also suggests getting cholesterol, blood sugar levels, inflammatory markers and uric acid tests. Experts stress the urgency of lab testing, as many threats to heart health happen silently and unknowingly. If you have a close relative with CVDs, consider talking to your doctor about genetic testing to understand your risks.

Each day we face decisions that could move us closer to good health or further away from it. “We have to realize that the choices we make every day are the main drivers of heart disease. Most things in life that are worth it take effort and discipline—but then we reap the benefits. This realization should empower and inspire you to look at your daily lifestyle and take care of yourself—the payoffs are huge,” says Dr. Orfanos. ●

THE PLANT PRESCRIPTION

When cardiovascular disease was knocking on a writer's door, he asked the question: Could shifting to a vegan diet get his blood pressure in check?

BY PAUL GREENBERG

REVIEWED BY DIETITIAN JESSICA BALL, MS, RD

Hear disease? Oh, c'mon, that's so old school." So went my thinking as I rode a conveyor belt into a CT scan in one of those dreary medical-imaging facilities I'd managed to avoid for the entirety of my 51 years. I was fairly certain this was just another test that didn't really apply to me, one of the many my doctor had racked on to the growing list of exams we Americans find ourselves subjected to as we move through the decades. And why should it? I'd never smoked, I drank only in moderation—usually red wine. I exercised for a half hour on most days, meditated not infrequently and did all the other things one is supposed to do to manage stress. The EKG tracings of my heartbeats were suitable for framing. True, I didn't exactly follow Michael Pollan's dictum to "Eat food. Not too much. Mostly plants." But I did mostly avoid processed junk. (Doritos while driving were, for some reason, allowed.) I'd managed to limit myself to what I thought was a tolerable dozen





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FOUR OR FIVE
SERVINGS OF
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HYPERTENSION

or so pounds of extra weight and I ate red meat only a couple times a month. That my “bad” LDL cholesterol had been creeping up slowly since my early 40s didn’t concern me that much. My “good” HDL levels were, well, good, and my GP assured me that my ratio of good cholesterol to bad was, also, well, good. And anyway, hadn’t the whole cholesterol thing been debunked by some *New York Times* writer or something?

Yeah, yeah, yeah, both of my grandfathers had died of cardiovascular disease. And yeah, yeah, yeah, my blood pressure had started sneaking up on me too. Just as sneakily, in 2017 the AHA and American College of Cardiology lowered the standard for normal blood pressure by 10 points, placing me on the border of hypertension. Still, I continued to

think of all this heart disease stuff as something that only applied to guys who carried around tackle boxes full of pills, listened to Sinatra on AM radio and instructed waitresses to “Go easy on the salt, will ya, sweetheart? I gotta watch my presha.”

But unbeknownst to me, as my medical practitioners logged the various changes in my numbers, they were start-

ing to reconsider my normally salubrious state of affairs, moving me out of what they considered “low risk” up into the midrange for a heart attack or stroke. Which is why, in January of last year, I was told to get a coronary calcium scan (aka heart scan), a test—not covered by insurance, thank you very much—that uses a highly specific X-ray technology to measure amounts of calcium-containing plaque in the arteries of the heart. Even as the CT scanner zoomed back and forth across my chest, I comforted myself that my friend had cholesterol levels nearly twice as high as mine and had just gotten a perfect zero score on hers. “I got this,” I thought.

Two days later, my doctor called to say I scored a 90 out of 400—more calcification in my arteries than 60 percent of men my age. Without even asking, he phoned in a prescription for statins. If I followed doctor’s orders, I would be taking pills every day for the rest of my life. The pharmacy left five

messages confirming that my drugs were ready. But I didn’t pick them up. I just didn’t want to. I was convinced that I wasn’t a statin kind of a guy. Wasn’t there another way? During the next year I would find out that, yes, there was. Although it sure as hell wasn’t as easy as taking a pill.

ONE OF THE 48 PERCENT

If there was one comfort in all this, it was the fact that I was hardly alone in the diagnosis I’d received. Heart disease remains overwhelmingly the top cause of death for Americans, picking off more than 800,000 of us every year. According to the AHA, nearly half of all Americans (48 percent) are living with some form of cardiovascular disease (which includes coronary heart disease, heart failure, stroke and hypertension), and two-thirds have at least two major cardiovascular risk factors, such as high cholesterol, poor diet quality and sedentary lifestyle. And while new medical procedures have come along since Sinatra’s salad days—like stents and bypasses that have saved countless lives—most cardiologists focus on addressing the accumulation of arterial plaque before a stent or bypass becomes necessary.

Plaque is a combination of fats, calcium, cholesterol and other molecules that can chronically impede blood flow to the heart and brain. An acute situation can arise if a piece of unstable plaque cracks, exposing the blood vessel to clotting agents in the blood—causing a rapid blockage that leads to a heart attack. And in 40 percent of such cases that’s that.

Stopping or slowing plaque accumulation is where statins enter the picture. Today, most cardiologists agree that excessive LDL cholesterol, which is produced by the liver, is a major contributor to plaque buildup. Statins block the enzyme that prompts the liver to make LDL cholesterol and also enables the liver to take up excess LDL from the blood, preventing some or all of it from accumulating. But statins do other interesting things. They can also lock the more dangerous, unstable plaque in place, preventing it from cracking. And studies published in the journal *Nature* and others have found that these drugs have an anti-inflammatory effect in the body and may relax veins and arteries, easing blood flow.

There’s conflicting evidence as to whether going vegan, vegetarian or eating mostly plants but allowing for some meat is best.



Yes, heart disease, on a population level, is as serious as it is common, and “on a population scale, statins are miracles,” according to renowned diet-centered physician Michael Greger, author of the bestselling *How Not to Die*. Which is why the default for my very mainstream cardiologist was to call in the medication cavalry. Most studies put the mortality risk reduction between 5 and 25 percent. But when you take it down to a personal level, Dr. Greger told me, the benefits of statins are not as great. In men 70 and older (two factors that automatically up your odds) with no previous history of heart disease, the risk of dying from a heart attack or stroke is reduced much less—only by around 0.1 percent “No doctor tells people that because no one would take these drugs if they did,” said Dr. Greger. “I mean, what risk reduction would you need to justify taking a drug every day for the rest of your life?”

Now, that’s what I wanted to hear. I am an individual, damn it, not a population. And I am a pretty motivated one to boot. What if I adopted the most heart-healthy eating pattern possible, amped up my exercise regime and dropped those pesky extra

pounds? I decided to give myself a year to make it work. And if it didn’t, the drugstore was right around the corner.

INTO THE PLANT-O-SPHERE

Ever since writing a book about heart-healthy omega-3 fatty acids, I’d been interested in the differences in outcomes from diet to diet. I’d also been circling around the idea that the best diet for your body might also be the best one for the planet. So when I began researching what to eat for my yearlong heart-improvement project, my attention eventually zeroed in on going vegan. For the planet there’s little doubt that veganism works. Animal agriculture contributes nearly two-thirds of the greenhouse gas emissions created by food production globally—and 78 percent of its methane emissions. And for me, a vegan diet felt straightforward; it eliminated whole categories of foods I might be too tempted by.

With health outcomes, plant-based diets have shown promising results—although there’s conflicting evidence as to whether going vegan,

vegetarian or eating mostly plants but allowing for some meat, fish and dairy is best. What I found most impressive were the studies that cardiologist Dean Ornish, founder of the Preventive Medicine Research Institute in Sausalito, California, conducted in the 1990s—looking at what happened to cardiac patients when they were put on a plant-based (though not completely vegan) diet. In many cases, Dr. Ornish discovered that with people like me who had significant calcification, their arteries actually opened up. This phenomenon has been attributed in part to the high amounts of anti-inflammatory micronutrients that a plant-centered diet—full of vegetables, fruits, whole grains, pulses and nuts—delivers.

More recently, a review published in the *American Journal of Clinical Nutrition* reported that among a group of 96,000 Seventh-day Adventists—who adhere to varying types of plant-based diets—those who were vegan had the lowest risk of hypertension, as well as the lowest body-mass indices (BMIs,) compared to participants eating a vegetarian diet or a plant-based diet that included small amounts of animal foods.

So, plants it was. But which plants? Here again, I turned to Dr. Ornish, or rather Dr. Greger, Dr. Ornish's colleague. In his hundreds of short nerdfest online videos, Dr. Greger has over the years tried to take all the studies of all the foods out there and wedge them into what amounts to a mega meta-analysis of everything from broccoli to beans to beets. Based on that distillation, Dr. Greger recommends a diet to his patients that meets nearly all of your nutritional needs and delivers the fiber, antioxidants and other micronutrients that are thought to be the key to tamping down inflammation, lowering LDL cholesterol and improving cardiovascular health. What most decidedly wasn't on the list were animal products and highly processed foods of any kind.

The transition was choppy. Going out to eat was a nightmare. Restaurants had to be pre-vetted and I became that irritating member of a social circle who didn't partake in the shared appetizer platter. At home, though, things went much smoother. I've always loved to cook, and swapping in mushrooms for pork in my Bolognese didn't bother me much. In fact, I was impressed with all the many

ways plant-based cooking had advanced since I last tried vegetarianism, back in the '80s. Making cashew mozzarella was a revelation, as was the totally convincing swap of aquafaba (canned-chickpea water) for eggs in homemade mayonnaise. And by the time I arrived for my three-month checkup, I felt confident that I could sustain my new diet.

In preparation for my experiment, I had also switched to a more lifestyle-centered cardiologist, Suzanne Steinbaum, DO, president of the SRS-Heart Center for Women's Prevention, Health and Wellness in New York. She's used to challenging establishment assumptions, having been a leader in drawing attention to the overlooked fact that for American women, too, cardiovascular disease is the number one cause of death. But even Steinbaum was cautious about the idea of holding off on drugs. In fact, like pretty much every doctor I interviewed for this article, Steinbaum saw many benefits in statins. "I know cardiologists who, after putting in so many stents on so many patients say, 'They should just put statins in the water,'" she told me. Indeed, many of the cardiologists I talked to were themselves on statins.

But a week later, when the results of my first blood tests came back, Steinbaum was impressed. In just a few months, my LDL had dropped from 160 to 127 mg/dL. My blood pressure—which had been stubbornly stuck at 140/90 mm Hg—was trending downward to something like 135/85. Still, she said, we should really dive deeper to try to figure this out.

In other words, more tests.

A TURN FOR THE BETTER?

We have come a long way in the past 60 years in understanding the root causes of heart disease. Way back in the Rat Pack days, when the physiologist Ancel Keys first started peering into arteries and finding fatty deposits in the vascular system of middle-aged males, the thought was that fat and cholesterol from food were somehow literally oozing into our blood vessels and clogging them up: a kind of plumbing problem. But as medical research has become more fine-scaled in its ability to identify nuanced pathways, we've come to understand that CAD is a multifactor issue, one that hinges on a complicated interlinking dynamic of diet, lifestyle and genes.



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TO MAKE A
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BOLOGNESE.



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As I entered the second quarter of my vegan trial, Steinbaum and I started trying to tease out how I stood on those other factors. She ordered a battery of new tests that looked both at my liver's natural ability to deal with cholesterol as well as at my genetic proclivity to have faulty LDL-clearing enzymes in the first place. (I should say here that I am lucky to be covered under my partner's excellent insurance, or getting to the root of things could have made a serious dent in my finances.) On the good side, a test for apolipoprotein E (APOE), a hereditary marker that is strongly linked to heart disease and Alzheimer's, came back with a normal reading. On the not-so-great side was the result of a panel of tests done by Boston Heart Diagnostics. Generally, Boston Heart judged me to be sound. But one factor that showed red in the user-friendly pamphlet the lab gives its patients was an elevated level of apolipoprotein B—the protein component of what cardiologists call “small and dense” LDL. These particles are very strongly associated with heart attack risk. Worse, small dense LDL levels don't change all that much in response to what we eat. If it turned out that apoB-driven LDL was at the root of my problem, it's possible that my endeavors might hit a wall, regardless of how much broccoli and beets I shoved down my gullet. Nevertheless, I persisted.

When I let Dr. Greger know that I'd lowered my LDL by more than 40 points he was pleased, but not particularly surprised. Most of his patients, he said, saw a 30 percent reduction in LDL in just a few weeks after switching to a vegan diet. This is partially due to actual changes the diet seems to engender in the functioning of the liver but also because the switch generally drops your weight. And weight has a considerable correlation with cholesterol. Dr. Greger explained that for every pound lost, people also tended to shed about one point of LDL. Seeing as I was still above the normal BMI range, I decided to up my exer-

cise and see if I could knock both numbers down.

This might have been as important a choice for me as changing diets. Exercise, it turns out, is about the most statistically effective form of intervention there is for reducing cardiac “events,” as doctors call heart attacks and strokes. According to Benjamin Levine, MD, a professor of internal medicine and cardiology at UT Southwestern Medical Center and Texas Health Presbyterian Dallas, in people like me with calcium scores of less than 100, studies have found a whopping 50 percent reduction in heart attacks and strokes when subjects exercised regularly compared to those who remained sedentary. (He notes that the benefit seems to plateau at around five hours a week.) Besides shaving off pounds and reducing stress, exercise also lowers blood pressure, stabilizes the heart's rhythm and even improves its overall structure. Particularly relevant to my dilemma: there is evidence, too, that exercise helps transform unstable plaque into the calcified stuff that won't break off and cause...an event. Since I had already been doing 30 minutes a day, I upped my “dose” to the upper part of Levine's range and started running 45 minutes daily.

PHARMACY AVERTED

It's hard to say if I was experiencing a massive kale-induced placebo effect, but I can truthfully say that

by month nine of my experiment I felt fantastic. I had lost a dozen pounds, had more energy and could manage 10K runs without joint pain or shortness of breath, though I did miss a good steak from time to time. And my labs from Steinbaum cheered me. “The most compelling markers that we have are the cholesterol and blood pressure,” she wrote. “Your LDL cholesterol before you started your trial in February was 160, in May it decreased to 127 and now it is 118. Your ambulatory blood pressures in May were 120–145/80–95. Currently your blood pressures are in the 120s/70–80s.” Based on all that, it seemed I had beaten the rap. On the presumption that a continuation of my diet and exercise plan would further lower my numbers, Steinbaum was holding off on statins for the moment.

As I started taking a victory lap, I consulted a bunch of other doctors to fact-check (but also to crow about my numbers). Sadly, several suggested that my whole experiment might be flawed. “The oversimplification of LDL has been driven by the promotion of drugs that lower LDL, rather than the science which says the driver is inflammation,” Mark Hyman, MD, head of strategy and innovation at the Cleveland Clinic Center for Functional Medicine, explained. “While LDL is a useful risk factor, it is not as important as the overall pattern of cholesterol—small dense LDL particles, high triglycerides, low HDL—and inflammation. The most dangerous pattern is driven by a diet high in sugar and starch, not fat.” Other physicians I interviewed agreed that animal fat isn’t the biggest problem. Rather, it’s sugars and simple carbs that drive insulin spikes and inflammation and, in turn, heart disease. Indeed, a study review published in *Progress of Cardiovascular Diseases* found that some sources of saturated fat may have no impact on heart disease, while refined carbs—particularly added sugar—lead to an uptick in inflammation, LDL and other changes that increase heart disease risk and can lead to a threefold risk of dying from it.

“But I bake my own bread and it’s 100 percent whole wheat!” I protested. Not enough, Hyman said. “My rule of thumb is the only bread you should eat is a loaf you can stand on that won’t squish.” As a precaution, I followed his advice and switched to a Danish health loaf that indeed bears

a certain resemblance to a tasty brick. And in general, as I continued to modify my diet, I favored Dr. Greger’s advice to eat only whole, plant-based foods and eschewed the products coming out of the rapidly emerging highly processed vegan-food sector.

If there is one thing I’ve learned after a year of being more in contact with the medical world than I’d normally care to be, it’s that tests beget tests. As I geared up to see Steinbaum for a final evaluation, we planned a repeat cardiopulmonary exercise test (CPET) to see if the impressive 112 percent VO2 score I’d gotten earlier was a fluke or a trend. We’d redo the apoB test and find out if I’d managed to tackle the “very bad” bad-cholesterol issue. And we’d test to see if I had any “endothelial dysfunction,” a way of charting whether the calcium picked up in my calcium score was inside or outside of my arteries.

But then the coronavirus swept across New York in 2020. All nonessential services were shut down, including Steinbaum’s office. In mid-March, I developed a dry cough, slight difficulty breathing, a fever and extreme fatigue. I knew people with impaired heart health were particularly vulnerable to COVID-19 and I was sure I had it. I worried.

And then, just as suddenly as they arrived, my symptoms vanished. My breathing returned to normal. I started running again. I felt great. Had my improved cardiovascular health contributed to my mild viral experience? Had all that diet and exercise paid off in actual life-saving in the face of a deadly pandemic? I wanted to think so. When I finally tested positive for COVID antibodies in May, that very much seemed to be the case.

Since then I’ve returned to Steinbaum’s office so we can keep on improving my numbers. I’ve seen the results of changes in lifestyle and diet and am committed to doing better with how I eat and exercise. Because, really, in today’s times with all of life’s stresses ahead, I know I’m going to need a whole lot of heart. ●

I sought to eat only whole, plant-based foods and eschewed the products from the rapidly emerging highly processed vegan-food sector.



STAPLES TO STOCK

A dietitian weighs in on the healthy and delicious foods that make it easy to prepare DASH Diet dishes.

BY ANDREA MATHIS, MA, RDN, LD



BLUEBERRIES

According to the Dietary Guidelines for Americans, fruits such as blueberries are associated with a reduced risk of several chronic diseases, including cardiovascular disease. Blueberries are high in soluble fiber: One cup contains approximately 3.6 grams. Soluble fiber helps your gut remove bile and manage cholesterol by binding to the cholesterol, salts and other bile components and eliminating it through the body's waste. Blueberries are also certified as a heart-healthy food through the AHA Heart-Check Food Certification Program. In addition to their heart-healthy benefits, blueberries contain beneficial vitamins and minerals and can be used in a variety of recipes. Try adding blueberries to your overnight oats or use them in a sweet and savory sauce to pair with salmon.



OATMEAL

Oats are a great heart-healthy way to start the day and contain a type of soluble fiber called beta glucan that helps to lower cholesterol levels and reduce the risk of heart disease. The fiber and protein content help keep you satisfied between meals and slow down blood glucose release. In addition to their fiber content, oats are an excellent source of several vitamins and minerals, including copper, magnesium, zinc and thiamine. According to the U.S. Department of Agriculture, a one-cup serving of cooked oatmeal contains about 1.8 milligrams of thiamin, which is close to 15 percent of what the average adult needs each day. Oats are extremely versatile and can be enjoyed in a variety of ways. Try using oats to make baked oatmeal or as a nutritious way to bind together your meatloaf.

SALMON

Salmon can be an excellent source of protein and aligns well with the DASH diet. It's packed with omega-3 fatty acids, which help lower cholesterol by decreasing triglyceride levels and increasing high-density lipoprotein or HDL (also known as the "good" cholesterol) levels. They may also decrease platelet accumulation, which is helpful in preventing the coronary arteries from blocking or decreasing blood flow to the heart. Plus, salmon contains several vitamins and minerals including phosphorus, selenium, zinc, potassium, riboflavin, niacin, folate and B-12. The Food and Drug Administration (FDA) suggests eating eight ounces of salmon each week as a part of a healthy diet regimen. To meet this guideline, try adding a serving of salmon to your breakfast omelet.



**COLLARD GREENS**

Known for their large, dark-colored leaves and impressive nutrient profile, collard greens contain vitamin C, vitamin K and soluble fiber. Studies suggest that eating collard greens lowers low-density lipoprotein cholesterol, also known as LDL or the “bad” cholesterol. The soluble fiber helps absorb cholesterol before it makes its way into the bloodstream, thereby lowering your cholesterol levels. These tasty greens are also rich in potassium, an electrolyte that helps to regulate your heartbeat, maintain fluid balance, and regulate muscle contractions. Collard greens are typically slow-cooked and simmered in a large pot, but they can also be used to make a hearty deli wrap.



YOGURT

The DASH diet calls for two to three servings of low-fat or nonfat dairy foods each day. Yogurt helps to meet this requirement and can be easily added to most diet regimens. It provides several important nutrients including calcium, vitamin B-12, magnesium and phosphorus. It also contains probiotics, which help to improve gut health and boost immunity. Research suggests that daily consumption of yogurt has been linked to healthy blood pressure, cholesterol, and triglyceride levels, as well as preventing long-term, unplanned weight gain. To increase your daily dairy intake, try adding a cup of yogurt to your favorite smoothie recipe or using it to make a creamy sauce for your next pasta dish.



TOMATOES

Tomatoes are packed with a nutrient called lycopene. Lycopene is responsible for the tomato's vibrant red color, and it's also a powerful antioxidant. Antioxidants protect our cells from becoming damaged. Research shows that lycopene may lower LDL and keep the blood from clotting, which in turn lowers the risk of developing heart disease.

Tomatoes also contain vitamins such as B and E and minerals such as potassium. Potassium is a mineral that can help to lower blood pressure by removing some of the excess sodium from the body.

Tomatoes are an essential addition to a satisfying sandwich, and they can also be blitzed up to create a flavorful gazpacho or diced and added to a hearty vegetable stew.

AVOCADOS

Fresh avocados are a heart-healthy fruit that naturally provide good fats. They are also low in saturated fat and contain zero cholesterol, sugar and sodium. When used in place of other fats, avocados can be a delicious component of the DASH eating plan. Seventy-five percent of the fat in avocados is “good” fat, which helps the body absorb fat-soluble nutrients without raising LDL cholesterol when eaten as part of a healthy diet. In addition, fat and fiber both promote satiety, or the physical feeling of fullness, which is important for managing your appetite and body weight. Avocados can be eaten in a variety of ways. Try using them to make a creamy salad dressing or use them to make chocolate mousse.





KIDNEY BEANS

Including kidney beans as a part of the DASH diet regimen may help improve your cholesterol levels and reduce the risk of developing heart disease due to their rich soluble fiber content and significant amounts of folate and magnesium. The presence of soluble fiber in kidney beans binds to cholesterol and prevents it from reabsorbing into the body. Folate helps to lower the risk of heart disease by lowering levels of homocysteine. Elevated blood levels of homocysteine have been linked to heart attacks, stroke and other chronic diseases. Kidney beans also are a good source of magnesium, which helps to improve the flow of blood, oxygen and nutrients throughout the body. Kidney beans can be used in a variety of recipes, such as bean dip and chili. You can even use kidney beans to make a delicious chilled bean salad.



5 HABITS THAT LOWER CHOLESTEROL

Making these changes can help keep your cholesterol levels in a healthy range.

BY NOVELLA LUI, RD, MHS^c

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holesterol has a reputation for increasing your risk for heart disease and stroke. But what exactly is cholesterol, and why should you worry about its levels? Read on to find out more about cholesterol and the five habits you can break to improve your cholesterol levels.

Cholesterol is a waxy substance that is naturally made by the liver. It is an essential ingredient for digestion and helps your body produce hormones and vitamin D (from the sun). Cholesterol is also present in foods, including eggs, shellfish, red meat and full-fat dairy products. Still, eating dietary cholesterol generally does not affect your blood cholesterol.

Cholesterol travels through the bloodstream by binding to proteins called lipoproteins. When you hear your health care providers talking about cholesterol, they refer to the concentrations of the “bad” cholesterol, also known as low-density lipoproteins (LDL) and the “good” cholesterol, also known as the high-density lipoproteins (HDL) cholesterol.

Simply put, the more LDL cholesterol present, the more cholesterol is attached to the walls of

the arteries, which becomes plaque. As the plaque builds up, blood flow becomes restricted, making the heart work harder. This buildup can lead to heart problems like stroke or a heart attack.

The good news is, HDL cholesterol prevents cholesterol from accumulating by taking it away from the blood vessels and back to the liver, where it gets broken down. In other words, the more HDL cholesterol is present, the less your risk for heart disease and stroke.

Your risk for high cholesterol is determined by several factors, including genetics and age. Fortunately, what you eat, your body weight, whether you smoke and exercise can make a difference in your cholesterol levels. Talk to your doctor about testing your cholesterol levels. They may recommend medication if they’re high, but breaking some of these habits can help you improve your levels and be healthier in other ways. Here are the top five habits to improve cholesterol.

1. EAT LESS ADDED SUGAR

Added sugars are forms of refined carbohydrates added to foods and beverages during production



PLANT-BASED
PROTEINS LIKE
LENTILS AND
BEANS CAN
HELP LOWER
CHOLESTEROL.





Dijon Salmon with Green Bean Pilaf
at eatingwell.com/dijonsalmon

and in meal preparation. Unlike naturally occurring sugars, which are found in vegetables, fruits and dairy products, consuming added sugars may raise LDL cholesterol and lower HDL cholesterol, leading to an increased risk for coronary heart disease. In short, reducing your added sugar intake may help to improve your HDL cholesterol levels.

The American Heart Association (AHA) recommends limiting added sugar intake to no more than 100 calories a day for females and 150 calories a day for males, equivalent to about six and nine teaspoons, respectively.

Added sugars are found in food and drinks, including sodas, energy drinks, some yogurts, breakfast cereals and oatmeal, cereal bars, desserts, baked goods and more.

To cut back on your added sugar intake, check the nutrition label for added sugars. Read the ingredient list, as added sugars come in various names including brown sugar, molasses, agave,

honey, fructose and high-fructose corn syrup.

If you drink soda regularly, consider cutting back on the amount you drink. You can also reduce the serving size of foods that provide added sugars, and try making sweet treats without added sugar.

2. EAT LESS REFINED GRAINS

Like added sugars, refined grains provide minimal nutritional value as the bran and germ, which include essential nutrients like dietary fiber, are stripped out during the manufacturing process.

As a result, the starchy part of the grain remains. When consumed, it becomes absorbed into the blood sooner, causing sudden spikes in the blood sugar level and triggering the pancreas to produce and release more insulin. Over time this could lead to weight gain, increased triglyceride levels, insulin resistance and a greater risk for coronary heart disease.

Refined grains include white flour, white pasta and noodles, potato chips, cakes, cookies and more.

Whole grains, such as whole barley, whole oats, millet, buckwheat and spelt, on the contrary, are better for your heart. Dietary fiber helps stabilize the blood sugar and prevents sudden spikes by slowing down the absorption of sugar.

Whole grains may also help improve your cholesterol level. Including an extra serving or two in your diet may reduce the LDL cholesterol level and the risk of coronary heart disease by 10 to 20 percent.

To get into the habit of eating whole grains, start by replacing one meal with whole grains and slowly work towards including whole grains as part of most meals and snacks.

3. EAT MORE DIETARY FIBER

Besides whole grains, other foods containing dietary fiber include vegetables, fruits, beans and legumes. Specifically, the soluble fiber present in these foods acts as a sponge that binds to dietary cholesterol and fat and removes them in the stools.

For example, beta glucan, a form of soluble fiber found in bran and whole grains such as oats and barley, may reduce LDL cholesterol levels. Oats, in particular, could potentially decrease total cholesterol by five percent and LDL cholesterol by seven percent.

Males and females are recommended to consume between 28 and 34 grams and 25 and 28 grams, respectively, of fiber per day. While there are no specific recommended amounts for soluble fiber, consider including at least 10 grams of soluble fiber as part of your diet if you have high cholesterol.

When you increase your fiber intake, start slowly and make sure you are also increasing your water consumption to minimize the likelihood of constipation.

4. EAT MORE OMEGA-3 FATS

Until recently, saturated fats found in red meats, pork, poultry skin and full-fat dairy products were blamed for increasing one's risk for high cholesterol and heart diseases. Emerging research suggests that saturated fats can still be a part of a healthy diet, but consuming more polyunsaturated fats may reduce LDL cholesterol levels.

The AHA recommends consuming no more than 5 to 6 percent of calories from saturated fats. This amount is equivalent to 11 to 13 grams of saturated fats on a 2,000-calorie diet.

Additionally, including fatty fish such as salmon, mackerel, herring and sardines as part of a diet rich in omega-3 fats, a type of polyunsaturated fat, may also increase your "good" HDL cholesterol. The AHA suggests consuming fatty fish at least twice a week. Try and reach for other omega-3 rich foods such as walnuts, flaxseeds and chia seeds.

5. STAY ACTIVE

Finally, you will notice a significant improvement in your cholesterol levels when you eat well and exercise simultaneously. Engaging in regular physical activity promotes weight loss and healthier cholesterol levels by helping reduce your LDL levels and improve your HDL levels. Any physical activity helps, including brisk walking, jogging, running, swimming, cycling and yoga. Strength building exercises, such as weight lifting, may also be beneficial in dropping the LDL level.

If you are inactive, it is never too late to start. Start slowly by exercising in increments of 10 minutes, and work towards exercising at least 30 minutes daily, with 150 to 300 minutes per week. Talk to your doctor before starting a new exercise program. ●





A QUICK WAY TO
CUT BACK ON
SODIUM IS TO
MAKE THE SALT
SHAKER LESS
AVAILABLE DURING
MEALTIME.





HOW TOO MUCH SALT SHAKES UP YOUR BODY

Here's what happens when your sodium intake is higher than recommendations, and how you can cut back.

BY CAROLYN WILLIAMS, PH.D., RD

The fact that most Americans exceed daily sodium recommendations probably isn't all that surprising. "Reduce sodium" and cut back on salt" have been consistent health messages for the past several decades to try and help people stay under the recommendation of no more than 2,300 mg—or one teaspoon—a day. Yet, curbing salt intake isn't often a top diet priority for most unless their blood pressure is a concern (in which case the recommendation is even lower, at 1,500 mg). But maybe it should be, because blood pressure changes aren't the only effects that too consuming excess salt can have. Here's what else eating too much salt can do to your body.

YOU FEEL PUFFY AND GLOATED

Water always follows sodium, and the kidneys use this principle to help them closely regulate blood volume and fluid in the body. So, when you eat a large amount of salt (causing blood sodium levels to rise), the kidneys compensate by retaining fluid to balance and normalize levels.

The effects are usually mild and temporary, yet still annoying: things like jeans fitting a little

tighter at the waist, a puffy face or small overnight increase in weight per the scale. The solution? It seems counterintuitive, but you should drink plenty of water (and avoid high-sodium foods).

YOU CAN'T QUENCH YOUR THIRST

Do you find yourself reaching for a water bottle a little more than normal after eating a meal out? Restaurant meals are known for being higher in sodium, but this effect isn't limited to a burger at your local diner. Any high-salt meal can trigger an intense thirst. Sensing an increase in blood sodium, receptors in the kidneys and brain trigger the thirst sensation. The body uses thirst as a protective mechanism so you'll be driven to hydrate and lower your sodium concentration.

YOU GET HEADACHES

Eating salt triggers an almost immediate rise in blood pressure in some people, and headaches are a common symptom of high blood pressure. But a high-salt diet can also make people with normal blood pressure more susceptible to headaches. In a 2014 study at Johns Hopkins of 400 people, researchers found those eating the highest levels



of salt had the highest frequency of headaches. When salt intake was decreased, both people with normal and high blood pressure had fewer headaches.

YOU'RE MORE PRONE TO ECZEMA

The idea that salt might have a direct impact on skin irritations like eczema initially seemed far-fetched—until I started reading and understood the connection that skin has to the immune system. While that data is limited, excess salt in the diet appears to trigger the immune

system to release T-cells. Research suggests that this release leads to a type of hyperinflammatory response seen with eczema, as well as other inflammatory conditions like arthritis and asthma. The thought is that excess salt triggers inflammation, aggravating eczema similar to how allergens and irritants in the diet do.

YOUR RISK OF STOMACH CANCER MAY INCREASE

Stomach cancer is one of the fifth most common



forms of cancer, and it's the third-most-deadly worldwide. Higher salt intakes are a risk factor for development of stomach cancer. Researchers don't fully understand the connection between salt and cancer, and it's not clear if all foods high in sodium have the same risk. There's some evidence that this risk may primarily stem from meats that are cured or seafood and vegetables salted and fermented for preservation.

YOU ARE MORE LIKELY TO GET KIDNEY STONES

Regularly consuming excess salt can make you more susceptible to forming kidney stones. This is because excess salt increases the amount of calcium in urine. Kidney stones form when calcium combines with oxalates or uric acid in urine and begin to form crystals. As these crystals get bigger, they become stones that can travel to the urinary tract and get stuck. The result is usually intense pain until that stone passes.

YOU MAY INCREASE YOUR RISK OF DEMENTIA

High levels of salt appear to increase levels of an inflammatory compound in the brain which leads to oxidative damage and begins to hinder blood flow. This is based on a 2018 study in *Nature Neuroscience*, where a high salt diet was associated with causing dementia in mice. And researchers believe the effects may be similar when it comes to dementia in humans.

HOW TO CUT BACK

To help slash extra sodium from your diet, try to eat at home as much as possible. Restaurant meals are laden with sodium, and cooking at home helps you to control how much salt actually goes into your food.

If you do go out to eat, ask for your entree without salt (add it yourself at the table, if you'd like). You can also ask for your sauce or dressing on the side, and dip your fork into it rather than pouring it over your food. To help save on sodium, opt for grilled rather than fried proteins, and choose veggies or salad as your side dish.

It's not that hard to exceed the recommendations for salt intake, especially if you're often eating packaged foods or restaurant-made meals. That being said, salt is an extremely important component of flavor, so some is okay. Just choose whole foods more often and add salt yourself (when you can) to better control how much goes into each meal. Herbs and spices also go a long way in amping up the flavor of foods without the need for excess salt. And lastly, get your blood pressure checked annually by your physician to make sure it's in a healthy range. ●

The Gut Health Connection

Your microbiome might be making it harder to keep your blood pressure in check.

BY KARLA WALSH

High blood pressure increases a person's risk for heart disease, heart attack, stroke and cognitive decline. And since high blood pressure often presents with no symptoms until a larger cardiac event occurs, it's sometimes called a "silent killer".

In fact, a lot of people don't even know they have high blood pressure, especially if they're only getting it checked during annual visits to their primary care provider.

What's more, the CDC notes that just 24 percent of people with high blood pressure are considered to have their condition under control. Another term for this is "resistant hypertension," meaning an individual maintains a blood pressure higher than 140/90 mmHg, despite being treated with multiple medications (two to three) to try and lower blood pressure.

Doctors generally try one medication to start, then work their way through the list of all three if a patient's blood pressure doesn't respond.

Since high blood pressure is so common—and so commonly "out of control"—researchers are on a mission to discover more sneaky reasons why high blood pressure happens, the best diet to decrease blood pressure and more.

The latest discovery in the hypertension space displays how systemic the condition truly is: A 2022 study from the University of Toledo, Ohio, soon to be published in the journal *Experimental Biology*, suggests that our gut bacteria may explain why treatment is ineffective for some people, including that 76 percent who have resistant hypertension.

It's not just medication that is impacted by the microbiome, either. A September 2021 study in the *Journal of Hypertension* found that a large, diverse population of good gut bacteria can help prevent hypertension before it happens.

The researchers examined the microbiome of rats to see

how the quality and quantity of gut bugs might impact common blood pressure treatments. Tao Yang, Ph.D., lead author of the study and assistant professor at the University of Toledo, and his team discovered that one common gut bacterium, *Coprococcus* comes, can interfere with the action of some angiotensin-converting enzyme (ACE) inhibitors—one of the most common classes of treatments for high blood pressure.

Translation: Certain gut bacteria might affect the ability of these hypertension medicines to do their usual job.

"The cause of resistant hypertension is unclear, and there is no efficient method to treat resistant hypertension, other than changing the medications and dosages," Yang says. "Our study proved the concept that modulation of your microbiota may help the efficacy of antihypertensive drugs."

A healthy (or unhealthy) gut impacts

everything from weight to stress and anxiety to overall heart health, and now scientists think it may also play a role in which medicines are most helpful in managing certain health conditions.

In the future, Yang and company hope to dive into whether other classes of antihypertensive drugs are less impacted by gut bacteria.





Their aim: To pinpoint a new possible treatment approach, possibly including probiotics and antibiotics, to help those who don't respond favorably to current high blood pressure treatments.

This study hints that different gut bacteria play greater and lesser roles in this equation, but it's not exactly easy to

know what bugs are hiding out inside. So we asked Yang how, if at all, we might be able to tell if our tummy might be causing trouble.

"There are services available to determine the microbial composition of feces to determine which microorganisms reside in your gut. The microbial composition report is

useful in determining if your gut microbiota is healthy and balanced," he says. For instance, Proteobacteria is a group of pathogenic microbes normally found in adults that can help with gut health. But if you have too much Proteobacteria, you could be at risk for metabolic disorders. Your likely "gut allies" include the microbes

Faecalibacterium and Roseburia, Yang adds, noting that these two are often depleted if you have certain chronic diseases.

"Due to the intricacy of the gut microbiota, each individual is unique. Although this general remark about microbial composition may not apply to everyone, it never hurts to be aware," Yang concludes.

It's not realistic for everyone to do such testing to determine the gut bacteria make up. But what we do know is that there are certain diet and lifestyle habits that can help—or hinder—our gut health. Eating more probiotic-rich foods, like kimchi, kefir and yogurt, deposit good-gut bacteria into your system. And eating more fiber-rich prebiotic foods, like beans, whole grains, and fruits and veggies, provide fuel for that good gut bacteria to stay strong and healthy.

On the other hand, pulling back on processed foods made with too much added sugar and hydrogenated fats, as well as curbing excessive consumption of red meat, can also help support a healthy gut.

Larger studies, and ones performed on humans, still need to be performed to confirm this link. Until we know more about the connection between gut health and hypertension, though—and even if your blood pressure falls within a safe range right now—it certainly can't hurt to give your gut some TLC.

CHAPTER



Healthy Lifestyle

Food is only one component of heart health. Staying active, managing stress and getting plenty of sleep are all crucial for stopping hypertension from getting out of hand.







THE BRAIN HEALTH DIFFERENCE

Turns out, the heart and the head are more closely connected than once thought. Keeping your heart healthy can keep your mind right.

BY DEANNA PAI

REVIEWED BY DIETITIAN JESSICA BALL, MS, RD

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hen you think of maintaining your cognitive health over time, maybe you consider the daily crossword puzzle, a fruit-filled diet, or a good night's

sleep. And while all those things may indeed contribute to a healthy brain, there's a chance you're overlooking one major factor: your blood pressure.

High blood pressure for prolonged periods of time—aka hypertension—seems to have a direct impact on your risk for dementia, not to mention your overall cognitive function. “Multiple studies have found an association between high blood pressure and the development of cognitive decline later in life,” says Laurel Cherian, MD, a neurologist at Rush University in Chicago.

This discovery has led to the categorization of a type of dementia called vascular dementia. “Now it's been observed that many more forms of dementia that we thought were Alzheimer's disease are actually vascular dementias that just weren't on the radar,” says Stephen Juraschek, MD, PhD, a

professor at Harvard Medical School and epidemiologist who focuses on cardiovascular disease. It's now the second most common form of dementia behind Alzheimer's disease (though there's some overlap between the two).

“Hypertension can damage arteries, including those that feed the brain—making it more likely that atherosclerotic plaque will form,” says Alice Lichtenstein, PhD, a professor at and the director of the Cardiovascular Nutrition Lab at Tufts University in Boston. “This can potentially reduce blood flow to the brain.” Not only that, she adds, but hypertension can increase the risk of hemorrhagic stroke, too, which can have an outsized impact on your cognitive health.

Hypertension causes damage to a variety of organs throughout the body. With the brain, it happens in a few ways: High blood pressure can trigger inflammation, which leads to protein deposits that interfere with typical neural communication pathways; it can cause plaque build-up in blood vessels, as Lichtenstein mentions; and it can thicken



THE DASH DIET
INCLUDES
FOODS THAT
CAN HELP STAVE
OFF COGNITIVE
DECLINE.

and remodel blood vessels, restricting blood flow. “All these things can contribute to ongoing damage in a small way over time to the mind—causing declines that eventually meet criterion for dementia,” Dr. Juraschek says.

Hypertension can predispose you to Alzheimer’s, too. The build-up of plaque is the usual pathology. “Vascular disease and associated risk factors—like hypertension—amplify its progression and its effect on behavioral decline, like memory decline,” says Patrick Smith, PhD, a professor at the University of North Carolina and a clinical core member for the Duke-UNC Alzheimer’s Disease Research Center.

Its impact goes beyond a straightforward loss in memory. Some parts of the brain are more sensitive to changes in your vascular function than others—and they tend to be the same areas that are impor-

tant for executive function (meaning behavioral functions such as impulse control, learning efficiency, and problem-solving). “These functions are most important for self-management abilities and also most prognostic of dementia, even among individuals with memory problems,” says Smith. “So, in addition to worsening biomarkers of dementia, greater

vascular disease may also make it harder for people to make complex behavioral changes on their own, because of its impact on executive dysfunction.” In other words, the early effects of hypertension may make it harder for you to make the necessary changes to reduce hypertension, making it all the more deleterious.

If you’re not experiencing memory loss or you’re before an age where it’s a big concern, reducing your hypertension as early as possible is still important. Plus, hypertension can contribute to milder signs of cognitive decline, although these can be hard to predict. “Momentary unsteadiness, confusion, difficulty concentrating and paying attention—there could be these kinds of hypertension-related neurologic manifestations and symptoms, but they may not be universal for everybody,” Dr. Juraschek says.

The (sort of) good news? Hypertension seems to be the primary metric for predicting brain health via the heart. In other words, while other factors like high cholesterol and high blood sugar do play a role, “there seems to be pretty good evidence that controlling and treating blood pressure in clinical trials reduces risk of mild cognitive impairment and maybe even risk of developing dementia—and that is not necessarily the case as clearly for, let’s say, statin therapy to lower LDL cholesterol,” says Dr. Juraschek. In other words, it gives us a clear, concise goal for protecting the mind, which is to lower blood pressure.

That’s compelling, as research has found that lowering hypertension may have a preventative effect, too. In a substudy of the Sprint Mind Trial, a landmark study that assessed the relationship between blood pressure and cognitive health, the researchers used MRI imaging. Although the trial was cut short, “it was very suggestive that a lower blood pressure treatment goal could prevent dementia,” Dr. Juraschek says. “For mild cognitive impairment, which was a secondary outcome, they did demonstrate that this could be prevented.”

Reducing hypertension may even slow the progression of existing dementia. “Certainly, prevention is preferable, but in individuals who already have cognitive decline or dementia, there is evidence that blood pressure control may still be beneficial in slowing decline,” says Dr. Cherian. “Controlling hypertension is also critical for preventing stroke, which often worsens cognitive function and doubles the risk of developing dementia.”

That’s because while the damage done to the brain by high blood pressure can be hard to reverse, the thickening, the narrowing, and the plaque-collecting of the blood vessels in the brain—which, again, all can contribute to cognitive decline—can be halted. “You might not be able to reverse what already happened, but you could prevent more sporadic things, and that could cause the process to halt or plateau,” says Dr. Juraschek. “And you never lose enough cognitive function to reach dementia.” Even if you’re already dealing with hypertension, controlling your blood pressure, either with medications (like antihypertensives) and lifestyle tweaks (such as your diet) can lower the risk of cognitive decline and dementia—although, Dr. Cherian says, “there is

Controlling your blood pressure, either with medications or lifestyle tweaks, can lower the risk of cognitive decline and dementia.



conflicting evidence on how aggressive that blood pressure control needs to be to see a benefit.”

Clearly, there’s more than enough evidence to make a case for reducing hypertension—not just for your heart, but for your brain. And it can be especially valuable among those who are middle-aged. While dementia may seem far off, “research suggests that maintaining normal blood pressure during midlife is especially important and may prevent cognitive decline in later life,” says Dr. Cherian.

Those lifestyle adjustments, however, are easier said than done. “The critical gap right now is how to promote lifestyle changes that people will maintain, because the beneficial effects of lifestyle change on brain function are cumulative and build up over time,” says Dr. Smith.

Lately, along with the Dietary Approaches to Stop Hypertension (DASH) diet and the Mediterranean diet, is the MIND diet, which blends elements of the other two. The MIND diet recommends whole grains, green leafy vegetables, other types of vegetables, nuts, beans, berries, fish, poultry and olive oil—and notably limits red meat, cheese and butter. The DASH diet prioritizes lean meats and fish, whole grains, vegetables, fruit, nuts, fats and low-fat dairy, while limiting sodium and sweets.

The key differences between them: The MIND diet calls for more berries and lower dairy intake than the DASH diet. And while all three diets can have great outcomes, the looser requirements of the MIND diet may make it easier to stick with. Moreover, if your big concern is your future cognitive



+

THE MIND DIET
INCLUDES FOODS
THAT ARE RICH
IN COMPOUNDS
THAT PROTECT
AND NOURISH
THE BRAIN.

health, “the MIND diet was developed specifically for brain health, with an emphasis on nutrients essential for neurologic function,” says Dr. Cherian. “Because of this, I feel very comfortable recommending the MIND diet to my neurology patients, including those with a history of cardiac and/or cerebrovascular disease, such as stroke.”

However, Dr. Cherian does point out that the DASH diet—and the studies on it—have a bigger emphasis on restricting sodium, plus other methods of reducing blood pressure, like weight loss. “So, if I am recommending the MIND diet to a patient with a history of heart disease or stroke, I will also emphasize the importance of sodium restriction and maintaining a healthy weight,” she says.

The focus on sodium reduction is important in the development of hypertension. In fact, a 2001 study in the *New England Journal of Medicine* found that restricting sodium intake lowered blood pressure just as the DASH diet did—and that combining the two led to even better results. “What that study established is that on the one hand, we need to be eating more healthy whole foods rich in healthy minerals—but on the other hand, we do need to be attentive to how much sodium we are taking in,” says Dr. Juraschek. And sodium content is rampant in the U.S. “75 percent of all the sodium that we eat and consume in the United States is already in the food,” he says. “It comes to us from the grocery store. And if you leave the produce aisle and go down any aisle, it’s in almost every single product.”

Another advantage of DASH is that it can be particularly potent when paired with exercise. In a 2010 study helmed by Dr. Smith, participants who worked out when following the DASH diet had a more significant improvement in cognitive health. “Many studies, including ours, now suggest that multicomponent interventions are the best way to improve brain health—so exercise or dietary change or vascular risk reduction may all help individually, but they have the greatest benefits in combination,” he says. “Although we don’t yet know exactly why that is, it’s probably partly because exercise and diet in particular act in a ‘pluripotent’ way that medications often cannot; they simultaneously benefit multiple mechanisms affecting brain health.” Medications may have

more specific effects, but since cognitive decline is multifactorial, it calls for a similarly comprehensive lifestyle intervention.

What may be even better: The DASH diet plus weight management. “This has been replicated many times, whereas improved fitness tracks inconsistently with cognitive improvements,” Dr. Smith says. “Many studies suggest that improved metabolic function may be a critical ingredient to improve brain health, and weight loss is a robust driver of systemic metabolic improvements.” For example, there is ample research that associates insulin sensitivity with cognitive health after a lifestyle change—which suggests that some metabolic shift, like weight loss, might be central to the domino effect that ultimately results in better brain health.

Then there’s the scalability of DASH. Because its guidelines are straightforward—vegetables, lean meat like poultry or fish, dairy—it can be adapted to a wide variety of cultures and cuisines. “The nice thing about DASH is that you can take a healthy diet that reduces cholesterol, reduces blood pressure, reduces markers of subclinical cardiovascular injury—so, all things that we think long term should prevent vascular dementia—and adapt it to whatever your cultural tradition is, wherever you come from,” Dr. Juraschek says. That may make for better adherence, not to mention more enjoyable for people to implement.

Ultimately, “there’s a lot of attention to differences between various healthy diets such as DASH, Mediterranean and MIND, but the reality is that all these diets are preferable to what most Americans eat: a Westernized diet that is high in processed foods, high in salt, sugar, saturated and trans fats, preservatives and artificial flavoring and coloring,” says Dr. Cherian. So however way you choose to achieve and maintain a healthy blood pressure now in order to protect your future cognition, know that any positive intervention is better than nothing—especially when it comes to your diet. ●

In a 2010 study, participants who worked out when following the DASH diet had a significant improvement in cognitive health.

HEART ATTACK DEFENSE

Every year, about 805,000 people in the U.S. have a heart attack. Here are critical steps you can take to protect your heart.

BY NOVELLA LUI, RD, MHS_c

In the U.S., someone suffers a heart attack every 40 seconds. Chances are you know someone who's had a heart attack, and the thought of experiencing one yourself can certainly be scary. The good news is, you can reduce your risk for heart attacks by making wise lifestyle changes.

A heart attack occurs when blood flow to the heart is reduced or cut off. Blood carries oxygen and nutrients throughout the body. When the blood flow is restricted or cut off, parts of the heart muscles do not receive oxygen and nutrients. The lack of oxygen causes damage to the heart muscles. The extent of the damage, however, can vary.

The heart can recover by forming scar tissue. But the heart may no longer be in its best shape, where it may not pump blood as effectively and efficiently it previously did.

Surprising or not, you can have a heart attack without even knowing it. While the classical symptoms, such as chest pains, apply to both men and women, women are much more likely to get less common symptoms such as indigestion, shortness

of breath, and back pain, sometimes even in the absence of obvious chest discomfort.

A heart attack is different from a cardiac arrest. With cardiac arrest, the heart beats abnormally fast and out of its normal rhythm or stops beating all of a sudden. The analogy between the two is a plumbing issue for the former and an electrical problem for the latter. A heart attack may cause a cardiac arrest, but not the other way around.

Atherosclerosis, a condition where fat, cholesterol and other substances—collectively known as plaque—deposit along the lining of the coronary arteries that supply the heart muscle, hardening





the once flexible and elastic arterial walls. Over time, that plaque builds up, narrowing the arterial passage and restricting blood flow. The plaque may also burst, forming a blood clot by blocking the blood flow, or it may break apart and travel in the bloodstream.

A heart attack can be difficult to foresee, as there are often no symptoms associated with atherosclerosis. By the time symptoms present, your arteries may be narrowed or clogged to the point where blood supply is severely impacted. But there are a number of risk factors we know can increase your chances of having a heart attack. By being aware of

your risk, you're better prepared to care for your heart—and your health overall.

Several factors can increase your risk of having a heart attack, many that you cannot change, such as the sex you were assigned at birth, age, ethnicity and family history of heart disease. But don't sweat—there are ways to get lifestyle factors under control.

TAKE HIGH BLOOD CHOLESTEROL

Your liver makes cholesterol, a waxy substance that plays an essential role in hormone production, cell membrane structure and more.

When you hear or read about high blood



HEAVY DRINKING
IS LINKED TO
A NUMBER OF
POOR HEALTH
OUTCOMES,
INCLUDING HEART
DISEASE.



levels, consequently decreasing your risk for heart attacks. You can reduce your LDL cholesterol and triglyceride levels by reducing saturated fats in your diet. The American Heart Association (AHA) recommends consuming no more than 5 to 6 percent of your daily calories from saturated fat. This percentage is equivalent to 13 grams per day based on a 2,000-calorie diet. You can find saturated fat in meat, dairy products and some plant-based oils such as coconut oil, palm oil and palm kernel oil. Replacing some saturated fats with healthier fats,

cholesterol levels, they refer to lipoproteins, a substance that carries cholesterol in the bloodstream.

A high level of LDL, also known as low-density lipoproteins (or the “bad” cholesterol), present in your blood means that there is a lot of cholesterol transported by these lipoproteins. Having a high level of LDL poses a risk for atherosclerosis, which in the long run may lead to a heart attack.

And despite what you may have heard about cholesterol, eating foods that contain cholesterol, such as those found in egg yolks, meat, shrimp and full-fat dairy products, may not necessarily raise your blood cholesterol. Instead, a diet high in saturated fat and trans fat may increase the LDL cholesterol level.

KEEP TRIGLYCERIDES IN CHECK

Along with an elevated LDL level, a high triglyceride level puts you at higher risk of developing atherosclerosis. Triglycerides are the most common type of fat found in the body and are stored inside fat cells. They are also present in food. Your body converts some foods into triglycerides. Specifically, when you eat more calories than your body needs, overdo it on high-fat foods or those with simple carbohydrates (like soda and sweets), the excess is transformed into triglycerides and stored as body fat.

In other words, making changes to your diet may help lower your LDL cholesterol and triglyceride

such as monounsaturated and unsaturated fats found in olive oil, avocados, nuts, seeds and fish, would help improve your blood cholesterol. In particular, omega-3 fats, a form of unsaturated fats present in flaxseeds, walnuts and fatty fish such as salmon, mackerel and sardines, may also reduce blood clots.

A diet that consists of whole grains may also reduce your risk of heart disease. Specifically, recent research from Tufts University suggests that eating whole grains may help maintain a healthy waistline and improve blood pressure, blood sugar, triglyceride and cholesterol levels.

These improved parameters may be due to the feelings of fullness that whole grains provide. Soluble fiber, a type of dietary fiber found in oats and barley, may also prevent sudden spikes in blood sugar, thereby helping to better control blood sugar levels, which can be particularly valuable to those living with diabetes.

The Dietary Guidelines for Americans for 2020–2025 recommend eating at least three servings of whole grains per day, with one serving equivalent to a half cup of oatmeal, one slice of whole-grain bread, or a half cup of brown rice.

Plant-based foods such as vegetables, fruits, beans, legumes and tofu provide numerous nutritional benefits. They’re lower in calories and saturated fat and higher in dietary fiber, potassium and other helpful nutrients. According to research,

incorporating plant-based foods as part of your diet may reduce your risk for heart disease and other chronic diseases.

A plant-based diet is different from vegetarian and vegan diets in that a plant-based diet may include animal proteins in small amounts. More importantly, this diet focuses on including whole foods and nonprocessed foods.

To reap the most health benefits from plant-based style eating, follow the USDA MyPlate by including half the plate of whole vegetables and fruits, one quarter of the plate for whole grains and the remaining quarter for plant-based proteins. If a plant-based diet is a new concept to you, look for opportunities to replace meat with a plant-based protein with recipes you already make. For example, instead of using ground beef to make chili, use beans.

MINIMIZE ALCOHOL

Your liver breaks down alcohol and converts it to cholesterol and triglycerides. When you consume alcohol excessively, it can raise both cholesterol and triglyceride levels in your body. If you drink regularly, cap your consumption to no more than two drinks per day for men and one drink per day for women. One drink is equivalent to 1½ fluid ounces of spirits, such as vodka, gin, bourbon or scotch, five fluid ounces of wine or 12 fluid ounces of regular beer. While moderate alcohol consumption may provide some health benefits, it is best not to start if you do not drink at all.

GET PLENTY OF EXERCISE

Engaging in regular exercise promotes a healthy heart. Specifically, it encourages the growth of coronary collateral blood vessels.

In other words, physical activity may increase the number of small blood vessels connecting to the major arteries to the heart. Suppose one of these arteries becomes blocked: These collateral blood vessels serve as an alternate route to supply oxygen and nutrients to the heart area that would have otherwise experienced a heart attack due to restricted blood flow.

The Physical Activity Guidelines for Americans, 2nd Edition, recommends 150 minutes of moderate-intensity aerobic activity per week, 75 minutes

of vigorous aerobic exercise per week or a combination of activities of both intensities throughout the week. Moderate-intensity aerobic exercise includes brisk walking, gardening and biking, while vigorous aerobic activities, such as running, jumping rope, yard work that involves digging and others, tend to make you sweat.

AVOID SMOKING

The combination of carbon monoxide and nicotine from cigarette smoking may increase your risk for heart attack. When you smoke cigarettes, you inhale carbon monoxide. This harmful gas not only reduces the amount of oxygen carried by your red blood cells, it also causes cholesterol to get deposited in the inner lining of your arteries, leading to atherosclerosis. Nicotine may also harden the walls of the arteries. As time passes, the restriction of blood flow may lead to a heart attack.

You will also be at risk for heart attacks if you are a nonsmoker exposed to secondhand smoke. Your risk of developing heart disease is also 25 to 30 percent higher than those not exposed to it.

Making a plan to quit smoking or minimize your exposure to secondhand smoke could save your heart.

MANAGE STRESS

Lastly, you cannot underestimate how stress affects your heart. While stress itself does not directly trigger a heart attack, it may affect your well-being by influencing how you make your lifestyle choices.

For instance, people who experience long-term stress may overeat, choose less nutritious foods, start smoking or smoke more frequently, consume more alcohol than the recommended amount and more. All these behaviors may contribute to your overall lipid profile and heart health. That said, recognizing the underlying stressors and managing them is a must. Some activities that you can engage in to manage your stress include exercise, yoga, meditation and making it a priority to get plenty of sleep each night. ●

If you drink regularly, cap your consumption to no more than two drinks per day for men and one drink per day for women.



THE STRESS CONNECTION

While life's pressures and anxieties can reach us all, rampant chronic stress can wreak havoc on your heart health. Managing stress and cultivating a calmer outlook can keep your heart strong.

BY AKANKSHA SINGH

W

hen was the last time you crossed something off your to-do list without adding to it? Between work, family, finances and day-to-day chores, stress and anxiety have become a routine part of our lives. With the lingering pandemic, working from home and what generally feels like an apocalyptic episode of the *Twilight Zone*, it's no wonder people are experiencing unprecedented levels of stress today.

According to a poll of more than 3,000 respondents from the American Psychiatric Association (APA), 80 percent of people are stressed over "global uncertainty" and 87 percent of people are stressed over high grocery and gas prices.

"Stress activates [causes] the release of cortisol and epinephrine," explains Eva Shelton, MD, a resident physician at Brigham and Women's Hospital in Boston. "Cortisol narrows the arteries, which puts more stress on [them] and causes increased blood pressure, [while] epinephrine makes the heart beat faster." Over time, this puts individuals at risk of high blood pressure and heart conditions. A 2017 study published in *The Lancet*,

imaged the parts of the brain involved with fear and stress and found links between stress and cardiovascular disease. This is especially true for people of color who are already at an increased risk of high blood pressure and heart disease.

WHAT CAUSES SYMPTOMS

"Chronic stress is something many people struggle to effectively handle," says Kerri Masutto, a board-certified internal medicine doctor, adding, "many people look to [unhealthy] coping mechanisms." These may include things like sleeping pills or alcohol to help you sleep, or stimulants to help you wake up or remain focused (such as caffeine, nicotine or the unprescribed use of prescription stimulants).

"Both of these issues, lack of deep restorative sleep and overuse of stimulants can contribute directly to high blood pressure," cautions Dr. Masutto.

Alcohol—the choice of sleep aid for 20 percent of the population—actually decreases sleep quality. According to a 2018 study published in the *Mental Health Journal of Medical Internet Research*, moderate amounts of alcohol (two servings per day for



males or one serving per day for females) decreased sleep quality by 24 percent.

Similarly, explains Dr. Masutto, a lack of exercise and an increase in junk food consumption work together to increase blood pressure while chronically stressed. “[A] lack of motivation or energy for exercise, combined with this increase in sedentary time is another direct contributor to high blood pressure, [while] comfort foods tend to also be something that people reach for when chronically stressed,” she says.

According to the U.S. Department of Health and Human Services, nearly 1 in 2 adults has high blood pressure, with less active people having a 30 to 50 percent greater risk of developing high blood pressure.

Additionally, constantly reaching for a bag of chips or a candy bar every time you’re stressed

might not be the way to go. “Using food to change your mood—think high-sugar—or increase your energy [because of their] high caloric, high salt intake [can] have a negative impact on cardiovascular health,” says Dr. Masutto.

While most people know that high salt intake is linked to high blood pressure, sugar in processed foods is a main

contributor of high blood pressure and heart disease too. A 2019 research study published in *Nutrients* found that added sugar (the sort in processed foods, including syrups) was linked to high blood pressure in older women.

HOW TO CALM STRESS

“The sympathetic and parasympathetic systems work in opposition, so actions that can activate the parasympathetic system may help dampen the physiologic effects of stress,” explains Dr. Shelton. The parasympathetic nervous system is what relaxes your body after periods of stress and runs processes like digestion. It’s for this reason that meditating or taking deep breaths “turn on the parasympathetic system and promote calm,” says Dr. Shelton. Essentially, it’s a question of helping



RESEARCH SHOWS
THAT MEDITATION
CAN HELP
DECREASE STRESS
AND LOWER
BLOOD PRESSURE.

your body realize it’s safe. After all, as cave people, we only breathed deeply and calmly once we were out of harm’s way.

Here are a few steps you can take to lower your stress levels (according to experts). To start, Dr. Masutto recommends identifying the source of your stress. “Unfortunately, chronic stress is not something we can Band-Aid effectively,” says Masutto. “The best thing to do is to cut it out wherever you can.”

On the other hand, if you’re unable to cut the stress off at its source, learning healthy coping mechanisms might be the way forward, suggests



Dr. Masutto. “Often it’s very difficult to let go of unhealthy [coping mechanisms],” she says, “so instead of trying to remove those, try to add [a] healthier [one] first, [before you] give yourself permission to use the less healthy one.”

Dr. Masutto suggests this can be as simple as opting for a flavored water before reaching for alcohol or high-sugar soda. “Many people feel that they experience much of the same satisfaction from the carbonated water that they do with less healthy drinks and can reduce cravings for those drinks.”

Charissa Chamorro, PhD, a New York-based

clinical psychologist agrees. “Stress occurs when we believe that we do not have the resources to cope with the challenges we are facing,” says Chamorro. “[By] taking time to outline concrete steps to address the issue, we can highlight that we do have the resources to cope.”

Chamorro also suggests people stop and write down the source of stress when it strikes and engage with it. “Identify two concrete next steps that you can take to address the issue. This will empower you to handle the source of stress in a productive way.”

Additionally, Chamorro recommends getting seven to eight hours of sleep every night in order to improve your ability to cope with stressors. “Adequate sleep can actually decrease cortisol levels and improve your ability to cope with stress,” she explains.

According to the APA, adults who sleep fewer than eight hours a night report higher stress levels than those who don’t. What’s more, stress actually gets in the way of high-quality sleep and creates a “stress-sleep cycle.”

To help with both sleep and stress management for heart health, the experts recommend being physically active. “Exercise releases endorphins, which tells the body [you are] not in danger, and dampens the sympathetic response,” explains Dr. Shelton. Studies have found that adults who exercise

sleep better, cope with stress better and have better heart health and stable blood pressure.

Additionally, suggests Dr. Shelton, “Meditation turns on the parasympathetic system and promotes calm.” Research indicates that meditation helps lower blood pressure, reduces the risk of heart disease and relieves stress.

Lastly, it’s important to note that chronic stress looks different in everyone, so when nothing else is working, it might be time to seek help. “Stress is a normal part of life,” notes Chamorro, “however, if stress is impacting your daily functioning, it is time to seek professional help.” ●

Sleep and Heart Health: Perfect Bedfellows

Good sleep is critical for a number of reasons. And there may be an ideal bedtime for protecting your heart.

BY KARLA WALSH

REVIEWED BY DIETITIAN JESSICA BALL, MS, RD

Quality and quantity of sleep both play a crucial role in your energy levels, overall well-being and future disease risk. And now scientists are discovering when we hit the hay is also a key component to make the most of our zzz's. Since it aligns with our natural circadian rhythm and exposure to daylight in the earlier hours, the best time to tuck in is between 10 p.m. and 11 p.m. to reduce your risk for heart disease, according to 2021 research published in the *European Heart Journal Digital Health*.

Starting with bedtime and wake time data for a seven-day period from more than 88,000 adults between ages 43 and 70, the researchers also gathered lifestyle, health, physical and demographic details about each participant. Then nearly six years later, they checked in to see how many had received some form of cardiovascular disease diagnosis, such as a

stroke, heart attack or heart failure. About 3 percent of the individuals developed cardiovascular disease within this time. Those who went to bed at midnight or later were at highest risk, while those who fell asleep between 10 and 10:59 p.m. had the lowest risk.

You might be thinking the earlier the better, after hearing those results, but you can actually start snoozing too early compared to those who hit the "sweet spot" between 10 and 11 p.m.:

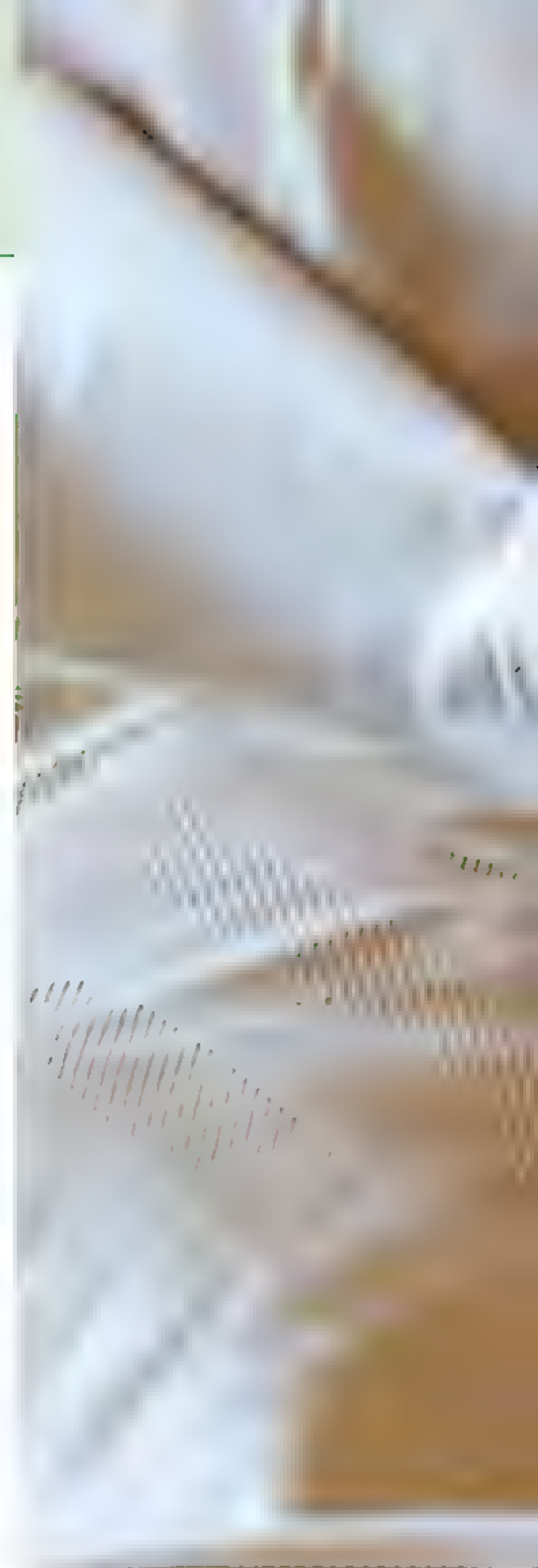
- Those who fell asleep after midnight were at 25 percent higher risk for cardiovascular disease.
- Those who fell asleep between 11 p.m. and 11:59 p.m. were at 12 percent higher risk for cardiovascular disease.
- Those who fell asleep before 10 p.m. were at 24 percent higher risk for cardiovascular disease—almost as high as the night owls.

"The riskiest time was after midnight, potentially because it may reduce the likelihood of seeing morning light, which resets the body clock," explains David Plans, Ph.D., a study author and a senior lecturer in organizational neuroscience at the University of Exeter, via a press statement. "The body has a 24-hour internal clock, called circadian rhythm, that helps regulate physical and mental functioning. While we cannot conclude causation from our study, the results suggest that early or late bedtimes may be more likely to disrupt the body clock with adverse consequences for cardiovascular health."

Other studies have proven that those who struggle to sleep live shorter lives, Thomas Kilkenny, D.O., the director of sleep medicine at Staten Island University Hospital in New York. And "this report goes

even a step further to show timing of sleep onset also can be a contributor to good cardiovascular health and that, if you go to sleep too early or too late, it adversely increases cardiovascular risks."

The authors confirm that this adds to mounting evidence that both when and how we sleep impact our heart health throughout our lifespan. If these results are verified in future larger research studies (they aren't 100 percent





sure if that 10 p.m. to 11 p.m. time is universal or if that could vary by population), a well-timed, high-quality sleep routine might become part of our overall heart disease prevention Rx.

"Optimal circadian timing of sleep may vary for some people, especially those who are 'morning larks' or 'night owls,'" Harly Greenberg, M.D., the chief of the Division of Pulmonary, Critical Care and Sleep Medicine at Northwell Health in New Hyde Park,

New York.

If you struggle to sleep well or snooze at a consistent hour, consider these tips for better sleep, according to experts.

- Sleep in a cool room, around 65 degrees
- Allocate time for sleep in your schedule by setting an alarm 30 minutes before bedtime to remind you to begin to wind down (read: turn off tech, listen to soothing music, practice a few bedtime yoga poses)
- Adjust your sleep schedule slowly to acclimate to a new bedtime or more shut-eye overall
- Try to move your body and soak up some natural light (with SPF on, of course) during the day
- Avoid alcohol and caffeine for the few hours before bed
- Keep a sleep diary noting quantity, quality and pre-bedtime habits, and talk to your doctor if you consistently struggle to sleep

"The number one tip for achieving our sleep goals is to specifically set aside an appropriate amount of time for sleep and to maintain a strict schedule. Oftentimes, we tend to fit in sleep when we can, allowing work and social schedules to interfere with good sleep timing. Sleep is one of the three things we humans must do to survive. Eat, drink and sleep. Everything else is pretty much an elective," Dr. Kilkenny concludes.



WHAT TO EAT FOR BETTER SLEEP

While the science on diet's impact on slumber is still emerging, these nutrients and hormones have risen to the top as better-rest superstars.

BY SHAUN DREISBACH

Sometimes it can be tough to get enough sleep. In fact, a 2020 National Sleep Foundation poll found that a staggering 84 percent of adults admitted feeling tired during the week—mainly because they don't sleep well, or they aren't getting enough hours of shut-eye period. Beyond feeling more alert, there are a slew of health benefits associated with getting enough rest, including supporting a healthy immune system, healthy skin and a healthy heart. However, upping your hours of sleep each night can be easier said than done.

Lucky for us, researchers have identified specific micronutrients and other substances in food that show promise for the tired and weary among us. "The more interesting studies are in people who have some kind of sleep complaint but not an actual disorder," says Michael Grandner, PhD, director of the Sleep and Health Research Program at the University of Arizona in Tucson, who studies nutrition's influence on sleep. "They show that you can somewhat normalize or at least make sleep better. It's hard to draw firm conclusions, but they are proof of concept." Read on for five nutrients that can help you catch more zzz's at night.

MELATONIN

You may be familiar with the supplement form of this sleep hormone. However, it's also found in foods and is produced naturally by the brain's pineal gland. Melatonin isn't a sedative that conks you out like Ambien. Rather, it's one of the key hormones that regulate your circadian clock—an internal timekeeper of sorts that, among other things, tells you when it's time to power down and wake up. Marie-Pierre St-Onge, PhD, an associate professor of nutritional medicine at Columbia University and director of Columbia's Irving Medical Center Sleep Center of Excellence, explains that melatonin levels are highest during the night, drop off in the morning (daylight suppresses its secretion) and then start to rise in the evening, a few hours before sleep onset.

Your body makes melatonin from an amino acid called tryptophan, found in foods. Turkey is an infamous source, but plenty of dietary staples—tomatoes, oats, milk—contain straight-up melatonin. "I've come to the realization that all whole foods may have some level of melatonin. It's intrinsic to the fruits, vegetables and animal products we consume," says St-Onge. "What we don't know is how much foods actually contain." (Supplement



Raspberry-Peach-Mango Smoothie Bowl,
recipe at
[eatingwell.com/
smoothiebowl](https://www.eatingwell.com/smoothiebowl)

dosages typically start at 0.5 mg.) That's because research has found that amounts of melatonin can differ greatly even among the same type of food, depending on factors such as how a plant is grown and even when a cow is milked. (Fun fact: Milk's melatonin concentrations have been found to be highest when cows are milked at night.) However, there's some evidence that plant sources tend to have higher concentrations of melatonin than animal ones—and it's been shown that people who eat the most fruits and vegetables have greater amounts of melatonin in their bodies than those consuming the least. Grandner says this may be part of the reason why those adhering to the Mediterranean diet sleep better than people who follow a way of eating higher in refined carbs and saturated fat and lower in produce, though he notes that this hypothesis has not been well-tested.

While healthy adults usually produce enough melatonin on their own, dietary sources can give you an extra boost in the sleep department. There's good research that suggests taking melatonin (most trials focus on supplements) benefits shift workers and people with jet lag, although studies on those with insomnia (chronic trouble falling to sleep or staying asleep) have been mixed. "It doesn't seem to be an effective treatment for insomnia, because for

most of these people, their body knows it's nighttime—they just can't slow their minds down," says Grandner. "But there is quite a lot of data out there that shows melatonin can improve sleep health in people who just have disruptive sleep—that it can help them fall asleep faster and make sleep less fragmented." A meta-analysis of 17 studies published in the journal *Sleep Medicine Reviews* found that, on average, ingesting melatonin helped participants with trouble sleeping nod off faster, increased total sleep time by as much as 25 minutes and significantly improved sleep efficiency (a fancy term for the amount of time you're zonked out, minus any tossing and turning).

OMEGA-3 FATTY ACIDS

Numerous studies have noted an association between the consumption of this healthy fat—found in fatty fish (like salmon), walnuts, avocados and flaxseeds—and improved sleep quality and duration. And because your body can't produce omega-3s on its own, diet (either food or a supplement) is your only delivery system for it.

Results of a randomized controlled trial published in 2021 in the journal *Nutrients* found that participants given supplements containing omega-3s nodded off faster and slept longer than those who got a placebo. This study looked at two types of omega-3s—DHA and EPA—that are mainly found in animal sources of food, but there's evidence that a variety in plants called ALA is also beneficial. And in a University of Oxford study, children given 600 mg of DHA daily for 16 weeks got nearly an hour more sleep and had seven fewer nighttime awakenings, on average, than they did before the trial. (For comparison, three ounces of salmon has about 1,000 mg of DHA.)

While some studies use supplements with doses higher than what you may get via fish or nuts, research does show that people with the most omega-3s in their diets have healthier sleep patterns than those who eat the least.

VITAMIN D

"Vitamin D is one of the circadian pacemakers—it keeps your sleep-wake cycles aligned and working nicely," says Breus. Yet around 40 percent of American adults are deficient. (Less than





12 ng/mL—nanograms per milliliter—is considered a deficiency; 12 to 20 ng/mL is an inadequacy.) A meta-analysis of studies with more than 9,300 participants, published in *Nutrients*, found that low blood serum levels of vitamin D—less than 20 ng/mL—were associated with poor sleep, fewer hours of zzz’s and daytime drowsiness. And a trial that measured the sleep patterns of more than 3,000 older men, published in the journal *Sleep*, showed that participants with low vitamin D had poorer quality and quantity of rest than those with adequate levels. The researchers note that the findings “suggest a potential role for vitamin D in maintaining healthy sleep.” There’s evidence that lack of vitamin D may up the risk for sleep apnea, as well. You can get vitamin D from some foods, including fatty fish, such as salmon, and fortified cereal and dairy products. But there’s a reason it’s called the “sunshine vitamin”: between 50 percent and 90 percent of your vitamin D comes from UV exposure. Around 15 to 20 minutes of direct sunlight on your skin causes your body to produce what you need. So in addition to diet, Breus recommends spending 15 minutes outside daily, sans sunglasses—your eyes can also synthesize the vitamin—or SPF. (Long enough to get a dose of D without getting burned.) And because deficiencies are so common, it’s not a bad idea to get your levels checked.

MAGNESIUM

According to the National Institutes of Health, 48 percent of Americans get too little of this mineral. (RDAs for adults range from 310 to 420 mg.) And that does not bode well for sleep. For starters, magnesium deficiency has been linked to an uptick in mood disorders, such as depression and anxiety, which are proven snooze annihilators. “Magnesium calms you down,” Breus explains. “It’s an anxiolytic—a substance that prevents and treats anxiety—so it helps you relax and allow the natural sleep process to take over.” Plus, it’s involved with the regulation of your circadian rhythms.

In a study of older adults (age is a risk factor for low magnesium), those given 500 mg of the mineral daily for eight weeks dozed off 12 minutes faster, stayed asleep 36 minutes longer and had fewer early morning awakenings than usual. Meanwhile, a placebo group had virtually no changes in their sleep. Boosting magnesium levels in those who are lacking is also associated with more slow-wave sleep—the “restore and recover” kind that’s key for immune health and repairing muscle and other tissues in the body. Unlike vitamin D, your body doesn’t make magnesium, so you have to eat it.

IRON

This is yet another micronutrient that Americans tend to fall short on—particularly females. (RDAs for adults range from 8 to 27 mg.) Iron-deficiency anemia—which occurs when your body does not have enough iron to produce hemoglobin, necessary for your blood to carry oxygen—can make you feel tired in its own right, regardless of how much rest you get. But it has been tied to sleep troubles, as well.

This essential mineral is involved in certain chemical processes in the brain that are linked to sleep physiology. A review of studies on micronutrients and sleep that Grandner worked on found that people with iron-deficiency anemia experienced more night wakings and shorter sleep compared to people with adequate levels of iron. It was also shown to throw off their various stages of sleep. On the flip side, iron-deficient people who upped their intake to normal levels slept better and longer. ●

The Exercise Equation

There's an optimal number of times you should exercise each week depending on your age and lifestyle.

BY ALEX LOH

REVIEWED BY DIETITIAN JESSICA BALL, MS, RD

"I'll exercise tomorrow" is a phrase that many, myself included, utter at the end of a long work day. Physical activity often takes a back seat to more relaxing activities, like watching TV, but it shouldn't. Exercise is necessary for both physical and mental health, which is why it's important to prioritize working out. But how many times a week should you work out? And how do you start an exercise program if you're new to fitness? Here's what experts say.

The World Health Organization (WHO) released updated guidelines in 2020 on how much physical activity one should aim for each week. We broke down their advice so you can figure out the frequency, intensity and length of your workouts, plus how many times a week you should work out, depending on your age and other health conditions.

For adults aged 18 to

64, both the WHO and the CDC stress the importance of exercise, especially to combat any sedentary movement (i.e., sitting all day for work). The WHO suggests at least 150 minutes of moderate-intensity activity or at least 75 minutes of vigorous-intensity exercise per week (you could also do a combination of the two). These exercises could include brisk walking, running or cycling.

If you can, the WHO also recommends at least two days of muscle-strengthening activities like lifting weights. Although these recommendations may seem overwhelming and time-consuming at first, remember that any physical activity is better than none. The WHO advises to "start by doing small amounts of physical activity, and gradually increase the frequency, intensity and duration over time."

For older adults aged

65 and up, the WHO suggests the same frequency and intensity of workouts as younger adults with one addition. On at least three days, the WHO advises adding in activity that focuses on balance and strength training, like yoga or dancing. For older adults, the WHO stresses the importance of exercise, which can help "prevent falls or falls-related injuries and declines in bone health and functional ability." These guidelines are also suggested for any adult, aged 18 and up with chronic conditions or living with a disability.

For pregnant and postpartum women, the WHO advises at least 150 minutes of moderate-intensity activity throughout the week. You should consult with your doctor before starting a new exercise routine and to make sure your plan to stay active is appropriate for your pregnancy. The WHO

recommends avoiding exercise in excessive heat, staying hydrated before, during and after exercise and avoiding activities that involve a high risk of falling, might limit your oxygen or involve the supine position (i.e., flat on your back) after the first trimester.

For children and adolescents aged 5 to 17, the WHO recommends a minimum of 60 minutes of exercise per day. The WHO suggests that exercise should consist of moderate- to vigorous-intensity activity, and that three of those days should also





include exercises that strengthen muscles and bones. The CDC, which concurs with the WHO's recommendation, suggests age-appropriate exercises like running, jumping, bike riding and more. These guidelines are also recommended for children living with a disability, but some activities may need to be modified. For kids, remember to keep it fun and playful. Play soccer, run around at the park or draw squares in chalk and hop around on them.

A WEEKLY PLAN

You can decide how

many times a week you should work out by looking at the type of exercise you're doing (and for how long you're doing it). For example, if you're a healthy adult, you could structure your week by doing an hour-long spin class plus two days of muscle-strengthening exercises to meet the WHO's minimum activity requirements. Or you could walk five days a week for 30 minutes and add in some strengthening body weight exercises for a more beginner-friendly approach.

However you choose to mix and match your

workouts, adding even just an extra 30 minutes each week can make a big difference in your overall health. Whether you choose to hike with your dog, swim in the ocean, play golf, pull weeds in your garden or do a group fitness class, it all counts towards your weekly activity goals!

HOW TO START

If you're wondering how to start working out for the first time (or after being away from the gym for a while), the key is to start small, build your activity level gradually and have fun! Whether you take a walk around

the block after dinner every evening or try out a yoga video on YouTube, you really can't go wrong. (As the WHO says, any activity is better than none!) Just make sure to do exercises you enjoy, as you're more likely to stick to them!

Although starting—and maintaining—a regular fitness routine may seem daunting, it is possible and the health benefits are impressive. Whether you go for a walk around the neighborhood or have a dance party in your living room, the first step to any healthy exercise routine is to start.

CHAPTER



Meals That Nourish

DASH diet dishes are easy to make and delicious. Here are some recipes for every meal of the day that can keep your blood pressure in check and stave off heart conditions.







BREAKFAST DELIGHTS

These recipes align with the DASH Diet and are low in saturated fat and sodium but high in potassium.

BY ALEX LOH

Mermaid Smoothie Bowl

ACTIVE: 5 min **TOTAL:** 5 min
Channel your inner mythical creature with a colorful smoothie bowl that's fun to make and eat. Look for blue spirulina powder, a protein-rich supplement made from blue-green algae, at natural-foods stores, or order it online.

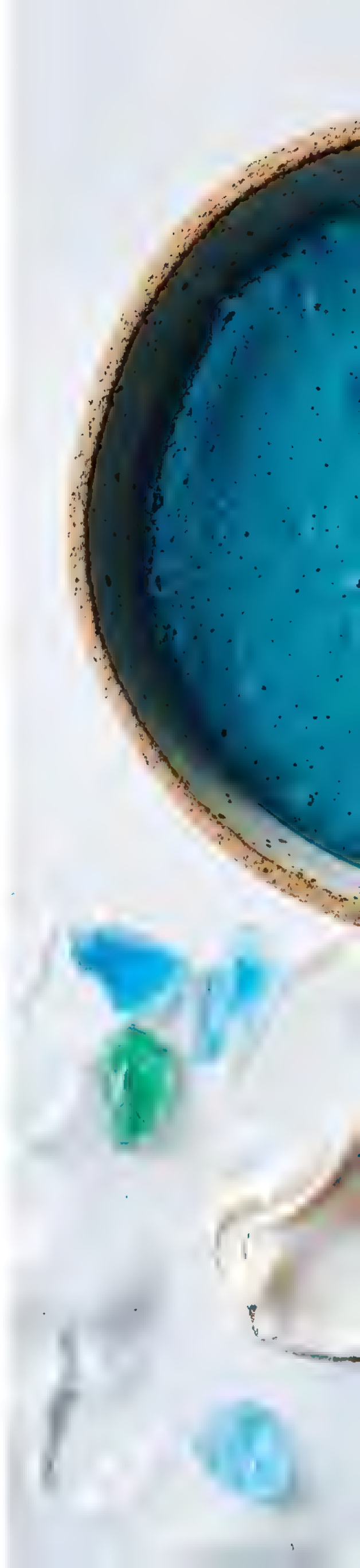
- 2 frozen bananas, peeled
- 2 kiwis, peeled
- 1 cup fresh pineapple chunks
- 1 cup unsweetened almond milk
- 2 teaspoons blue spirulina powder
- $\frac{1}{2}$ cup fresh blueberries

$\frac{1}{2}$ small Fuji apple, thinly sliced and cut into 1-inch flower shapes

1. Combine bananas, kiwis, pineapple, almond milk and spirulina in a blender. Blend on high until smooth, about 2 minutes.

2. Divide the smoothie between two bowls. Top with blueberries and apples.

SERVES 2. SERVING SIZE $\frac{1}{2}$ CUPS **PER SERVING:** CALORIES 251; PROTEIN 4.8G, CARBOHYDRATES 59.5G; DIETARY FIBER 8.7G; SUGARS 36.4G, FAT 2.5G; SATURATED FAT 0.3G; VITAMIN A 487.6IU; VITAMIN C 119.2MG; FOLATE 61.4MCG; CALCIUM 272.5MG; IRON 1.8MG; MAGNESIUM 62.4MG, POTASSIUM 847.3MG; SODIUM 115.8MG, THIAMIN 0.2MG. **EXCHANGES** 4 FRUIT





Vegan Smoothie Bowl

ACTIVE: 10 min **TOTAL:** 10 min

Eat this thick and creamy smoothie bowl with a spoon! Banana and frozen berries whip together with a little nut milk for a toppable vegan breakfast. We use fruit, nuts and seeds, but feel free to experiment with whatever you like.

- 1 large banana
- 1 cup frozen mixed berries

- $\frac{1}{2}$ cup unsweetened soymilk or other unsweetened non-dairy milk
- $\frac{1}{4}$ cup pineapple chunks
- $\frac{1}{2}$ kiwi, sliced
- 1 tablespoon sliced almonds, toasted if desired
- 1 tablespoon unsweetened coconut flakes, toasted if desired
- 1 teaspoon chia seeds

1. Combine banana, berries and

soymilk (or almond milk) in a blender. Blend until smooth.
2. Pour the smoothie into a bowl and top with pineapple, kiwi, almonds, coconut and chia seeds.

SERVES 1. SERVING SIZE 1 BOWL.
PER SERVING: CALORIES 338; PROTEIN 8.6G; CARBOHYDRATES 64.3G; DIETARY FIBER 12.1G; SUGARS 35.8G; FAT 9.6G, SATURATED FAT 3G; VITAMIN A 393.3IU; VITAMIN C 81.6MG; FOLATE 59.7MCG, CALCIUM 230.9MG; IRON 2MG, MAGNESIUM 94.2MG; POTASSIUM 940.3MG; SODIUM 46MG; THIAMIN 0.1MG





Really Green Smoothie

ACTIVE: 5 mins **TOTAL:** 5 mins

The combination of kale and avocado makes this healthy smoothie recipe extra green. Chia seeds lend a heart-healthy punch of fiber and omega-3 fatty acids.

- 1 large ripe banana
- 1 cup packed baby kale or coarsely chopped mature kale
- 1 cup unsweetened vanilla almond milk
- ¼ ripe avocado
- 1 tablespoon chia seeds
- 2 teaspoons honey
- 1 cup ice cubes

1. Combine banana, kale, almond milk, avocado, chia seeds and honey in a blender. Blend on high until creamy and smooth. Add ice and blend until smooth.

SERVES 1. SERVING SIZE 2½ CUPS PER SERVING: CALORIES 343; PROTEIN 5.9G, CARBOHYDRATES 54.7G; DIETARY FIBER 12.1G; SUGARS 28.8G; FAT 14.2G; SATURATED FAT 1.6G; VITAMIN A 2264.5IU; VITAMIN C 36.3MG; FOLATE 95.9MCG, CALCIUM 309.6MG; IRON 2.1MG; MAGNESIUM 112.2MG; POTASSIUM 1051.1MG; SODIUM 198.9MG EXCHANGES 3 FAT, 2 FRUIT, ½ OTHER CARBOHYDRATE, ½ VEGETABLE



TO MAKE AHEAD:
FREEZE THE
BANANA FOR UP
TO 3 MONTHS

Cantaloupe Smoothie

TOTAL: 10 mins

This healthy smoothie recipe is the perfect way to cool off in the summer, when cantaloupe is at its peak, adding plenty of sweetness to this healthy snack.

- 1 banana
- 2 cups chopped ripe cantaloupe
- ½ cup nonfat or low-fat plain yogurt

- 2 tablespoons nonfat dry milk
- ½ tablespoons frozen orange juice concentrate
- ½ teaspoon vanilla extract

1. Place unpeeled banana in the freezer overnight (or for up to 3 months).

2. Remove the banana from the freezer and let it sit until the skin begins to soften, about 2 minutes. Remove the skin with a paring knife. (Don't worry if a little fiber remains.) Cut the

banana into chunks. Add to a blender or food processor along with cantaloupe, yogurt, dry milk, orange juice and vanilla. Blend until smooth.

SERVES 1. SERVING SIZE 2¼ CUPS PER SERVING: CALORIES 364, PROTEIN 14G, CARBOHYDRATES 75 1G, DIETARY FIBER 6G; SUGARS 58 6G; FAT 3G, SATURATED FAT 1.6G; CHOLESTEROL 8 9MG; VITAMIN A 11228 8IU; VITAMIN C 165MG; FOLATE 127.6MCG; CALCIUM 374 2MG, IRON 1.2MG, MAGNESIUM 110.1MG, POTASSIUM 1868.7MG, SODIUM 187.2MG; THIAMIN 0 3MG

Smoked Salmon, Egg & Pickled Beet Bagel Sandwich

ACTIVE: 10 mins **TOTAL:** 10 mins

This veggie-packed Scandinavian-style riff on a lox bagel adds cucumbers, pickled beets and fresh dill for flavor and crunch.

- 2 tablespoons cream cheese
- 1 pumpernickel bagel thin or 2 slices pumpernickel bread, toasted
- 1 ounce sliced smoked salmon
- ¼ cup sliced cucumber
- ¼ cup sliced pickled beets
- 1 hard-boiled large egg, sliced
- 1 tablespoon chopped fresh dill

1. Spread cream cheese on a bagel thin half (or toast slice). Top with salmon, cucumber, beets and egg. Sprinkle with dill and top with the remaining bagel thin half (or toast slice).

SERVES 1. SERVING SIZE 1 SANDWICH
PER SERVING: CALORIES 368; **FAT** 17G,
CHOLESTEROL 222MG; **SODIUM** 631MG,
CARBOHYDRATES 35G; **DIETARY FIBER** 2G;
PROTEIN 19G; **SUGARS** 11G; **NIACIN**
EQUIVALENTS 3MG; **SATURATED FAT** 8G,
VITAMIN A 705IU; **POTASSIUM** 334MG



Skillet Vegetable & Egg Scramble

ACTIVE: 30 mins

TOTAL: 30 mins

Don't toss out those almost-past-their-prime vegetables and fresh herbs. Toss them into this skillet egg scramble for a quick vegetarian meal. Nearly any vegetable will work in this easy skillet recipe, so choose your favorites or use what you have on hand.

- 2 tablespoons olive oil
- 12 ounces baby potatoes, thinly sliced
- 4 cups thinly sliced vegetables, such as mushrooms, bell peppers and/or zucchini (14 oz.)
- 3 scallions, thinly sliced, green and white parts separated
- 1 teaspoon minced fresh herbs, such as rosemary or thyme
- 6 large eggs (or 4 large eggs plus 4 egg whites), lightly beaten

- 2 cups packed leafy greens, such as baby spinach or baby kale (2 oz.)

1. Heat oil in a large cast-iron or nonstick skillet over medium heat. Add potatoes; cover and cook, stirring several times, until they begin to soften, about 8 minutes.

2. Add sliced vegetables and scallion whites; cook uncovered, stirring occasionally, until the vegetables are tender and lightly browned, 8 to 10 minutes. Stir in herbs. Move the vegetable mixture to the perimeter of the pan.

3. Reduce heat to medium-low. Add eggs and scallion greens to the center of the pan. Cook, stirring, until the eggs are softly scrambled, about 2 minutes.

4. Stir leafy greens into the eggs. Remove from heat and stir to combine well. Stir in salt.

SERVES 1. SERVING SIZE 1½ CUPS. **PER SERVING:** CALORIES 254; PROTEIN 12.4G; CARBOHYDRATES 19.7G, DIETARY FIBER 4.3G; SUGARS 4.5G; FAT 14.2G, SATURATED FAT 3.3G, CHOLESTEROL 279MG; VITAMIN A 2936.2IU; VITAMIN C 87.3MG; FOLATE 73.6MCG; CALCIUM 72.5MG; IRON 2.8MG, MAGNESIUM 33.6MG, POTASSIUM 713.8MG, SODIUM 415MG.



Spinach & Egg Scramble with Raspberries

ACTIVE: 10 mins **TOTAL:** 10 mins

This quick egg scramble with hearty bread is one of the best breakfasts for weight loss. It combines protein-packed eggs and superfood raspberries with filling whole-grain toast and nutrient-rich spinach. The protein and fiber help fill you up and keep you going through the morning.

- 1 teaspoon canola oil
- 1½ cups baby spinach (1½ ounces)
- 2 large eggs, lightly beaten
- Pinch of kosher salt
- Pinch of ground pepper
- 1 slice whole-grain bread, toasted
- ½ cup fresh raspberries

1. Heat oil in a small nonstick skillet over medium-high heat. Add spinach and cook until wilted, stirring often, 1 to 2 minutes. Transfer the spinach to a plate. Wipe the pan clean, place over medium heat and add eggs. Cook, stirring once or twice to ensure even cooking, until just set, 1 to 2 minutes. Stir in the spinach, salt and pepper. Serve the scramble with toast and raspberries.

SERVES 1. SERVING SIZE 2 EGGS, 1 SLICE BREAD & ½ CUP RASPBERRIES. **PER SERVING:** CALORIES 296; PROTEIN 17.8G; CARBOHYDRATES 20.9G; DIETARY FIBER 7G; SUGARS 4.8G; FAT 15.7G; SATURATED FAT 3.7G; CHOLESTEROL 372MG; VITAMIN A 3312.6IU; VITAMIN C 28.1MG; FOLATE 79.4MG; CALCIUM 138.8MG; IRON 4.2MG, MAGNESIUM 76.1MG; POTASSIUM 292.6MG, SODIUM 394.2MG; THIAMIN 0.1MG.





SNACKS AND BITES

With ingredients like dates, nuts and lemon—plus other foods rich in calcium, magnesium or potassium—these snacks can even help you maintain a healthy blood pressure.

BY LEAH GOGGINS

REVIEWED BY DIETITIAN JESSICA BALL, MS, RD



Chocolate-Hazelnut Energy Balls

ACTIVE: 10 mins **TOTAL:** 40 mins

These energy balls marry the flavors of nutty hazelnuts with rich chocolate. They're chewy with a slight crunch and have just enough sweetness to curb a mid-day or post-dinner sweet tooth.

- 10 pitted dates
- $\frac{1}{2}$ cup hazelnuts, plus 2 tablespoons for garnish
- $\frac{1}{4}$ cup chocolate hazelnut butter, such as Justin's

- 1 tablespoon cocoa powder
- Pinch of salt

1. Place dates in a small bowl. Cover with hot water and soak for 5 to 10 minutes.
2. Meanwhile, pulse hazelnuts in a food processor until coarsely chopped. Add the dates and 1 tablespoon of the soaking water to the food processor. Add nut butter, cocoa and salt. Process until the nuts are finely chopped. Refrigerate the mixture for 15 minutes.

3. Roll the mixture into 12 balls (about 1 scant tablespoon each). Chop the remaining 2 tablespoons hazelnuts and sprinkle over top, pressing slightly to adhere, if desired. Refrigerate the balls for at least 15 minutes and up to 1 week.

SERVES 12. SERVING SIZE 1 BALL. PER SERVING: CALORIES 119; PROTEIN 1.6G; CARBOHYDRATES 17.3G; DIETARY FIBER 2.3G; SUGARS 14G; FAT 5.9G, SATURATED FAT 0.6G; VITAMIN A 30.7IU; VITAMIN C 0.3MG; FOLATE 8.1MCG; CALCIUM 18.4MG, IRON 0.4MG; MAGNESIUM 20.2MG, SODIUM 12.4MG



**TO MAKE AHEAD:
REFRIGERATE
IN AN AIRTIGHT
CONTAINER FOR
UP TO 1 WEEK**



TO MAKE AHEAD;
REFRIGERATE FOR
UP TO 1 WEEK OR
FREEZE FOR UP TO
3 MONTHS

Cherry-Cocoa-Pistachio Energy Balls

ACTIVE: 5 mins **TOTAL:** 5 mins
Minced dried cherries and pistachios make these energy balls a salty-sweet snack to satisfy all your cravings. Almond butter and cocoa add substance and chocolaty appeal. Serve any time of day as a snack or dessert, or pack them for a hike.

- 1½ cups dried cherries
- ¾ cup shelled salted pistachios
- ½ cup almond butter
- 3 tablespoons cocoa powder
- 4 tablespoons pure maple syrup
- ½ teaspoon ground cinnamon

1. Combine cherries, pistachios, almond butter, cocoa powder,

maple syrup and cinnamon in a food processor. Pulse until finely chopped, 10 to 20 times, then process for about 1 minute, scraping down the sides as necessary, until the mixture is crumbly but can be pressed to form a cohesive ball.

2. With wet hands (to prevent the mixture from sticking to them), squeeze about 1 tablespoon of the mixture tightly between your hands and roll into a ball. Place in a storage container. Repeat with the remaining mixture.

SERVES 32. SERVING SIZE 1 BALL. PER SERVING: CALORIES 72, PROTEIN 1.6G, CARBOHYDRATES 9.2G; DIETARY FIBER 1.1G; SUGARS 6.7G; FAT 3.7G; SATURATED FAT 0.5G; VITAMIN A 220IU; VITAMIN C 1.5MG; FOLATE 4.6MCG; CALCIUM 22.8MG, IRON 0.4MG; MAGNESIUM 18.9MG; POTASSIUM 99MG; SODIUM 27.3MG, ADDED SUGAR 11G

Borani Chogondar (Yogurt with Beets)

ACTIVE: 10 mins

TOTAL: 1 hr 10 mins

Borani, a Middle Eastern yogurt dip, can be made with anything from spinach to eggplant to carrots. This recipe gets its shockingly pink color from grated beets. Make it ahead—the longer it sits, the better it tastes.

- 1 medium red beet
- 3 tablespoons extra-virgin olive oil, divided
- 1 tablespoon dried mint plus 1 teaspoon, divided
- 1 teaspoon minced garlic
- ¼ teaspoon salt
- 2 cups whole-milk plain Greek yogurt
- ½ teaspoon ground pepper

1. Preheat oven to 425°F.
2. Wrap beet in foil and roast in a small baking pan until tender when pierced with a knife, 40 to 50 minutes. Unwrap and let cool; peel and grate using the large holes of a box grater.
3. Transfer the grated beet to a large bowl and stir in the 2 tablespoons oil, 1 tablespoon mint, garlic and salt. Let stand for 5 minutes. Fold in yogurt and pepper. Cover and let stand at room temperature for 1 hour or refrigerate for up to 3 days.
4. Serve topped with the remaining 1 tablespoon oil and 1 teaspoon mint.

SERVES 24. SERVING SIZE 2 TBSP. PER SERVING: CALORIES 40; PROTEIN 2G, CARBOHYDRATES 1.6G; DIETARY FIBER 0.2G; SUGARS 1.3G; FAT 2.8G; SATURATED FAT 0.8G; CHOLESTEROL 2.8MG; VITAMIN A 15.2IU; VITAMIN C 0.4MG, FOLATE 9.3MCG.





Lemon-Parm Popcorn

TOTAL: 5 mins

Perk up your popcorn with a bit of lemon pepper and Parmesan cheese.

- 2 teaspoons extra-virgin olive oil
- ½ teaspoon lemon pepper
- Pinch of salt
- 3 cups air-popped popcorn
- 1 tablespoon freshly grated Parmesan cheese

1. Whisk oil, lemon pepper and salt in a small bowl. Drizzle over popcorn and toss to coat. Sprinkle with Parmesan and serve immediately.

SERVES 2. SERVING SIZE 1½ CUPS, PER SERVING: CALORIES 99; PROTEIN 2.3G; CARBOHYDRATES 9.7G; DIETARY FIBER 1.7G; SUGARS 0.1G; FAT 5.9G; SATURATED FAT 1.1G; CHOLESTEROL 2.2MG; VITAMIN A 47.9IU; FOLATE 3.9MCG; CALCIUM 22.2MG; IRON 0.4MG; MAGNESIUM 18.1MG; SODIUM 198.7MG.

Traditional Greek Tahini Dip

ACTIVE: 15 mins **TOTAL:** 15 mins
Super creamy with the nutty flavor of sesame seeds, this homemade tahini sauce recipe is a popular way to begin a meal in Cyprus. Serve with crudité's and pita.

- 2½ cup tahini
- 2 tablespoons lemon juice
- 1 tablespoon extra-virgin olive oil, plus more for garnish

- 1 clove garlic, crushed
- ¼ teaspoon salt
- 6 tablespoons water
- 3 tablespoons chopped fresh parsley
- Toasted sesame seeds for garnish

1. Combine tahini, lemon juice, oil, garlic and salt in a food processor. Pulse, scraping down the sides as needed, until smooth. With the motor running, add water in a thin

stream until the mixture is pale and smooth. Transfer the dip to a serving bowl and top with parsley. Garnish with sesame seeds and more oil, if desired.

SERVES 8. SERVING SIZE 2 TBSP
PER SERVING: CALORIES 106,
PROTEIN 2.7G; **CARBOHYDRATES** 3.7G;
DIETARY FIBER 0.8G; **SUGARS** 0.1G,
FAT 9.7G; **SATURATED FAT** 1.4G,
VITAMIN A 128 8IU; **VITAMIN C** 4.1MG,
FOLATE 17.6MCG; **CALCIUM** 24.4MG,
IRON 0.8MG; **MAGNESIUM** 15.4MG,
SODIUM 79.1MG.







WHAT'S FOR DINNER?

These recipes are high in fiber, which can help remove excess cholesterol from your body.

BY ALEX LOH

Roasted Salmon with Smoky Chickpeas & Greens

ACTIVE: 40 mins **TOTAL:** 40 min
In this healthy salmon dinner, you'll get a dose of greens and green dressing! Chowing down on six or more servings of dark leafy greens a week can help keep your brain in top shape.

- 2 tablespoons extra-virgin olive oil, divided
- 1 tablespoon smoked paprika
- ½ teaspoon salt, divided, plus a pinch
- 1 (15 ounce) can no-salt-added chickpeas, rinsed
- ⅓ cup buttermilk
- ¼ cup mayonnaise
- ¼ cup chopped fresh chives and/or dill, plus more for garnish
- ½ teaspoon ground pepper, divided
- ¼ teaspoon garlic powder
- 10 cups chopped kale
- ¼ cup water
- 1¼ pounds wild salmon, cut into 4 portions

1. Position racks in upper third and middle of oven; preheat to 425°F.
2. Combine 1 tablespoon oil, paprika and ¼ teaspoon salt in a medium bowl. Very thoroughly

pat chickpeas dry, then toss with the paprika mixture. Spread on a rimmed baking sheet. Bake the chickpeas on the upper rack, stirring twice, for 30 minutes.

3. Meanwhile, puree buttermilk, mayonnaise, herbs, ¼ teaspoon pepper and garlic powder in a blender until smooth. Set aside.

4. Heat the remaining 1 tablespoon oil in a large skillet over medium heat. Add kale and cook, stirring occasionally, for 2 minutes. Add water and continue cooking until the kale is tender, about 5 minutes more. Remove from heat and stir in a pinch of salt.

5. Remove the chickpeas from the oven and push them to one side of the pan. Place salmon on the other side and season with the remaining ¼ teaspoon each salt and pepper. Bake until the salmon is just cooked through, 5 to 8 minutes.

6. Drizzle the reserved dressing on the salmon, garnish with more herbs, if desired, and serve with the kale and chickpeas.

SERVES 4. SERVING SIZE 4 OZ. SALMON, ¼ CUP GREENS, ¼ CUP CHICKPEAS AND 2½ TBSP DRESSING **PER SERVING: CALORIES** 447; **PROTEIN** 37G; **CARBOHYDRATES** 23.4G; **DIETARY FIBER** 6.4G; **SUGARS** 2.2G; **FAT** 21.8G; **SATURATED FAT** 3.7G; **CHOLESTEROL** 72.9MG; **VITAMIN A** 5200IU; **VITAMIN C** 51.7MG; **FOLATE** 77.9MCG; **CALCIUM** 197.8MG; **IRON** 3MG; **MAGNESIUM** 99.4MG; **POTASSIUM** 990.8MG; **SODIUM** 556.7MG

Ancho Chicken Breast with Black Beans, Bell Peppers & Scallions

ACTIVE: 45 min **TOTAL:** 45 min

In this healthy chicken recipe, the meat is rubbed with ancho chile powder, a spice made from dried poblano peppers. It adds mild heat and subtle smokiness to the rub on the chicken, but you can use regular chili powder here instead. This recipe makes an extra ½ cup of the black bean mash—try it wrapped into a burrito for lunch or as a taco filling (see Tips, below).

Beans

- 1 tablespoon extra-virgin olive oil
- 3 cloves garlic, minced
- 1 teaspoon cumin seeds
- 2 (15 ounce) cans low-sodium black beans, rinsed
- Juice of 1 lime
- ¼ teaspoon kosher salt

Chicken and Vegetables

- 16 scallions, trimmed
- 3 medium red bell peppers, cut into 1-inch strips

- 1½ tablespoons extra-virgin olive oil plus 2 teaspoons, divided
- ¾ teaspoon kosher salt, divided
- ¼ teaspoon ground pepper
- 2 (8 ounce) boneless, skinless chicken breasts, trimmed and halved crosswise

Spice Mixture

- 1 teaspoon ancho chile powder (see Tips)
- ½ teaspoon ground cinnamon
- ½ teaspoon unsweetened cocoa powder
- 1 teaspoon brown sugar

1. To prepare beans: Heat oil in a medium saucepan over medium heat. Add garlic and cumin seeds; cook, stirring, until fragrant and starting to brown, 30 seconds to 1 minute. Stir in beans, lime juice and salt and cook until hot, 2 to 4 minutes. Remove from heat and mash with a potato masher until mostly smooth. Refrigerate ½ cup of the mashed beans for another use (see Tips, below). Cover the remaining beans to keep warm.

2. To prepare chicken and vegetables: Position rack in upper third of oven; preheat broiler to high. Line a rimmed baking sheet with foil.

3. Toss scallions and bell peppers in a large bowl with 1½ tablespoons oil and ¼ teaspoon each salt and pepper. Transfer to the prepared baking sheet. Broil, stirring twice, until the vegetables are charred, 8 to 12 minutes.

4. Meanwhile, place chicken between 2 large pieces of plastic wrap. Pound with the smooth side of a meat mallet or a heavy saucepan to an even ½-inch thickness. Combine chile powder, cinnamon, cocoa, brown sugar and the remaining ½ teaspoon salt in a small bowl. Brush both sides of the chicken with the remaining 2 teaspoons oil and coat both sides with the spice mixture.

5. Coat a large grill pan or skillet with cooking spray and heat over medium-high heat. Reduce heat to medium and add half the chicken. Cook until an instant-read thermometer inserted in the thickest part registers 165°F, 2 to 4 minutes per side. Repeat with the remaining chicken, reducing the heat if necessary.

6. Place about ⅔ cup of the beans on each of four dinner plates and top each portion with scallions, bell peppers and chicken.

TIPS Turn leftovers into black bean tacos for lunch. Spread the ½ cup leftover beans on 2 corn tortillas. Top each taco with ¼ cup each chopped romaine lettuce and tomato, 1 Tbsp. each shredded Cheddar cheese and tomato salsa and a squeeze of lime juice. Serves 1.

SERVES 4. SERVING SIZE 3 OZ CHICKEN, ⅔ CUP BEANS, ¼ CUP PEPPERS, 4 SCALLIONS EACH **PER SERVING:** **CALORIES** 396; **PROTEIN** 32.4G, **CARBOHYDRATES** 36.1G, **DIETARY FIBER** 11.2G; **SUGARS** 11.1G; **FAT** 14G; **SATURATED FAT** 2.4G; **CHOLESTEROL** 62.7MG, **VITAMIN A** 3620IU; **VITAMIN C** 131.8MG; **FOLATE** 156.9MCG; **CALCIUM** 124.3MG; **IRON** 4.8MG, **MAGNESIUM** 49.5MG; **POTASSIUM** 959MG; **SODIUM** 463.9MG; **ADDED SUGAR** 1G.



? Ancho chiles—dried poblano peppers—are one of the most popular dried chiles used in Mexico; ancho chile powder has a mild, sweet spicy flavor. Look for it with specialty spices in large supermarkets or Mexican grocers.



Fassoulatha (White Bean Soup)

TOTAL: 2½ hrs

Also known as fasolada, this simple, rich stew is popular in Greek cuisine. Featuring a medley of white beans, tomatoes, carrots and celery, this fragrant stew is perfect for cooler weather.

- 1 pound dried white beans, soaked overnight
- 2 tablespoons extra-virgin olive oil
- 2 large onions, finely chopped
- 2 stalks celery, finely chopped

- 2 large carrots, finely chopped
- 1 quart water
- 2 large ripe tomatoes, peeled and mashed, or 1 tablespoon tomato paste
- 2 teaspoons dried oregano
- 1 teaspoon salt
- ¼ teaspoon cayenne pepper
- Ground pepper to taste

1. Drain beans and cook them, covered, in a large pot of boiling water until tender, about 1½ hours. Drain.
2. Heat oil in a large pot over medium heat. Saute onions, celery

and carrots for 3 to 5 minutes. Add water, the cooked beans, tomatoes, oregano, salt, cayenne and pepper. Simmer until the vegetables are tender, about 20 minutes. Taste and adjust seasonings.

SERVES 8. SERVING SIZE ABOUT 1½ CUPS.
PER SERVING: CALORIES 256; PROTEIN 13.2G; CARBOHYDRATES 42.3G; DIETARY FIBER 16G; SUGARS 3.8G; FAT 4.6G; SATURATED FAT 0.8G; VITAMIN A 3,447.9IU; VITAMIN C 10.4MG; FOLATE 206.5MCG; CALCIUM 129.8MG; IRON 4.2MG; MAGNESIUM 105.8MG; POTASSIUM 876.4MG; SODIUM 321.2MG; THIAMIN 0.4MG. EXCHANGES 2 STARCH, 1 VEGETABLE, 1 LEAN MEAT, 1 FAT



? Shrimp is usually sold by the number needed to make one pound. For example, "21-25 count" means there will be 21 to 25 shrimp in a pound.

Shrimp Piccata with Zucchini Noodles

ACTIVE: 35 mins **TOTAL:** 35 mins

The tangy lemon-caper sauce in this healthy Italian makeover recipe is a natural with shrimp. Serving it over zucchini noodles (aka zoodles) keeps the dish summery and low-cal, but it's also delicious with whole-wheat spaghetti.

- 5-6 medium zucchini (2¼-2½ pounds), trimmed
- ½ teaspoon salt
- 2 tablespoons butter
- 2 tablespoons extra-virgin olive oil, divided
- 2 cloves garlic, minced
- 1 pound raw shrimp (21-25 count; see Tip), peeled and deveined, tails left on if desired
- 1 cup low-sodium chicken broth

- 1 tablespoon cornstarch
- ½ cup white wine
- ¼ cup lemon juice
- 3 tablespoons capers, rinsed
- 2 tablespoons chopped fresh parsley

1. Using a spiral vegetable slicer or a vegetable peeler, cut zucchini lengthwise into long, thin strands or strips. Stop when you reach the seeds in the middle (seeds make the noodles fall apart). Place the zucchini "noodles" in a colander and toss with salt. Let drain for 15 to 30 minutes, then gently squeeze to remove any excess water.
2. Meanwhile, heat butter and 1 tablespoon oil in a large skillet over medium-high heat. Add garlic and cook, stirring, for 30 seconds. Add shrimp and cook, stirring, for 1 minute.

3. Whisk broth and cornstarch in a small bowl. Add to the shrimp along with wine, lemon juice and capers. Simmer, stirring occasionally, until the shrimp is just cooked through, 4 to 5 minutes. Remove from heat.

4. Heat the remaining 1 tablespoon oil in a large nonstick skillet over medium-high heat. Add the zucchini noodles and gently toss until hot, about 3 minutes. Serve the shrimp and sauce over the zucchini noodles, sprinkled with parsley.

SERVES 4. SERVING SIZE 1 CUP ZUCCHINI AND ABOUT ¾ CUP SAUCE. **PER SERVING:** **CALORIES** 281; **PROTEIN** 24.4G, **CARBOHYDRATES** 12.7G; **DIETARY FIBER** 2.5G; **SUGARS** 6.2G; **FAT** 14.5G, **SATURATED FAT** 5.1G; **CHOLESTEROL** 174.1MG; **VITAMIN A** 835.3IU; **VITAMIN C** 53MG; **FOLATE** 66.6MCG; **CALCIUM** 117.2MG; **IRON** 1.9MG; **MAGNESIUM** 85.8MG, **POTASSIUM** 1001.9MG; **SODIUM** 516MG, **THIAMIN** 0.1MG

Ratatouille with White Beans & Polenta

TOTAL: 40 min

Tons of lightly cooked vegetables combine with white beans in this hearty vegetarian dinner recipe. It can also be served over bread, like bruschetta.

- 5 tablespoons extra-virgin olive oil, divided
- 1 large onion, coarsely chopped
- 1 medium red bell pepper, chopped
- 4 cloves garlic, minced
- 1 small eggplant, cut into ½-inch chunks
- ½ teaspoon kosher salt, divided
- 2 medium zucchini, halved lengthwise and sliced
- 1 (15 ounce) can no-salt-added white beans, rinsed
- 1 pint cherry or grape tomatoes, halved
- ¼ cup slivered sun-dried tomatoes
- 1 teaspoon Italian seasoning
- 1 tablespoon capers, rinsed and chopped
- ½ teaspoon ground pepper
- 1 16- to 18-ounce tube prepared polenta (see Tip), sliced into 8 rounds
- ¼ cup toasted pine nuts

1. Heat 1 tablespoon oil in a large pot over medium heat. Add onion and bell peppers, sprinkle with ½ teaspoon salt; cook, stirring occasionally, until the vegetables soften, 5 to 7 minutes. Add garlic and cook, stirring, until fragrant, about 1 minute more. Transfer the vegetables to a large bowl.
2. Add 1 tablespoon oil to the pot. Add eggplant, sprinkle with ¼ teaspoon salt and cook, stirring frequently, until browned in places, 4 to 6 minutes. Transfer to the bowl with the vegetables.
3. Add another 2 tablespoons oil to the pot. Add zucchini, sprinkle with the remaining ½ teaspoon salt and cook, stirring frequently, until browned in places, 3 to 5 minutes. Add beans, cherry (or grape) tomatoes, sun-dried tomatoes, Italian seasoning, pepper

and the reserved vegetables; stir to combine. Reduce heat to medium-low, cover and cook, stirring occasionally, until the vegetables are tender, 8 to 10 minutes.

4. Meanwhile, heat remaining 1 tablespoon oil in a large nonstick skillet over medium heat. Add polenta rounds and cook until golden brown on the bottom, about 5 minutes. Turn each slice and cook until browned on the second side, about 5 minutes more.

5. Stir capers into the ratatouille. Serve the polenta and the ratatouille topped with pine nuts.

SERVES 4. SERVING SIZE ABOUT 2 CUPS RATATOUILLE AND 2 POLENTA ROUNDS **PER SERVING:** CALORIES 458, PROTEIN 11.7G; CARBOHYDRATES 49.6G, DIETARY FIBER 10.1G; SUGARS 12.6G, FAT 24.7G, SATURATED FAT 3G; VITAMIN A 1766.7IU; VITAMIN C 72.4MG; FOLATE 69.1MCG; CALCIUM 76.2MG, IRON 2.8MG; MAGNESIUM 107.7MG, POTASSIUM 920MG; SODIUM 597.9MG, THIAMIN 0.6MG

 Look for tubes of precooked polenta in the pasta aisle or near refrigerated tofu at the supermarket.



Vegetarian Stuffed Cabbage

TOTAL: 2 hrs

Though traditional stuffed cabbage recipes are made with meat, here Savoy cabbage leaves are stuffed with a combination of rice, mushrooms, onions, garlic and herbs for a healthy vegetarian stuffed cabbage recipe. The stuffed cabbage leaves gently bake in a simple tomato sauce. This easy stuffed cabbage recipe can be made ahead of time and baked just before serving.

Cabbage and Filling

- 1 cup water
- ½ cup short-grain brown rice
- 1 teaspoon extra-virgin olive oil plus 2 tablespoons, divided
- 1 large Savoy cabbage (2 to 3 pounds)
- 1 pound baby bella mushrooms, finely chopped
- 1 large onion, finely chopped

- 4 cloves garlic, minced
- ½ teaspoon dried rubbed sage
- ½ teaspoon crumbled dried rosemary
- ½ teaspoon salt, divided
- ¼ teaspoon ground pepper plus ½ teaspoon, divided
- ½ cup red wine
- ¼ cup dried currants
- ½ cup toasted pine nuts (see Tips), chopped

Sauce

- 2 tablespoons extra-virgin olive oil, divided
- 1 small onion, chopped
- garlic, minced
- ¼ teaspoon salt
- ¼ teaspoon ground pepper
- 1 28-ounce can no-salt-added crushed tomatoes (see Tips)
- ½ cup red wine

1. To prepare cabbage and filling: Combine water, rice and 1 teaspoon oil in a medium saucepan; bring to a boil. Reduce heat to maintain the barest simmer, cover and cook until the water is absorbed and the rice is just tender, 40 to 50 minutes. Transfer to a large bowl and set aside.

2. Meanwhile, half fill a large pot with water and bring to a boil. Line a baking sheet with a clean kitchen towel and place near the stove.

3. Using a small, sharp knife, remove the core from the bottom of the cabbage. Add the cabbage to the boiling water and cook for 5 minutes. As the leaves soften, use tongs to gently remove eight large outer leaves. Transfer the leaves to the baking sheet and pat with more towels to thoroughly dry. Set aside.

4. Drain the remaining cabbage in a colander for a few minutes. Finely chop enough to get about 3 cups. (Save any remaining cabbage for another use.)

5. Heat 1½ tablespoons oil in a large skillet over medium-high heat. Add mushrooms, onion, garlic, sage, rosemary and ¼ teaspoon each salt and pepper; cook, stirring, until the mushrooms

have released their juices and the pan is fairly dry, 8 to 10 minutes. Add wine and cook, stirring, until evaporated, about 3 minutes more. Add the mixture to the cooked rice along with currants and pine nuts.

6. Heat the remaining ½ tablespoon oil in the skillet over medium-high. Add the chopped cabbage, the remaining ¼ teaspoon salt and ½ teaspoon pepper; cook, stirring, until the cabbage is wilted and just beginning to brown, 3 to 5 minutes. Add to the rice mixture.

7. To prepare sauce: Heat 1 tablespoon oil in a large skillet over medium heat. Add onion, garlic, salt and pepper and cook, stirring, until starting to soften, 2 to 4 minutes. Add tomatoes and wine; bring to a simmer and cook until slightly thickened, about 10 minutes.

8. Preheat oven to 375°F.

9. To stuff cabbage: Place a reserved cabbage leaf on your work surface; cut out the thick stem in the center, keeping the leaf intact. Place about ¾ cup filling in the center. Fold both sides over the filling and roll up. Repeat with the remaining seven leaves and filling.

10. Spread 1 cup of the tomato sauce in a 9-by-13-inch baking dish. Place the stuffed cabbage rolls, seam side down, on the sauce. Pour the remaining sauce over the rolls and drizzle with the remaining 1 tablespoon oil.

11. Bake, uncovered, basting twice with the sauce, until hot, about 45 minutes.

TIPS For the best flavor, toast nuts and seeds before using in a recipe. Place in a small dry skillet and cook over medium-low heat, stirring constantly, until fragrant and lightly browned, 2 to 4 minutes.

SERVES 4. SERVING SIZE 2 ROLLS EACH
PER SERVING: CALORIES 544; PROTEIN 14.4G; CARBOHYDRATES 60.7G; DIETARY FIBER 12.4G; SUGARS 21.5G; FAT 23.8G, SATURATED FAT 2.8G; VITAMIN A 3351.9IU; VITAMIN C 70.6MG; FOLATE 181.1MCG, CALCIUM 132MG; IRON 6.5MG; MAGNESIUM 105.4MG; POTASSIUM 1833.1MG; SODIUM 498.6MG; THIAMIN 0.4MG.





Pan-Seared Steak with Crispy Herbs & Escarole

ACTIVE: 20 mins **TOTAL:** 20 mins

This easy dinner takes just 20 minutes to prepare, meaning that seared steak can be a weeknight meal. Cooking herbs in the pan with the steak releases their aroma, infusing it into the meat while creating a crispy garnish. After the steaks and herbs are pan-seared, the escarole is cooked in the same skillet, so this healthy dinner requires minimal cleanup too.

- 1 pound sirloin steak, about ½ inch thick
- ½ teaspoon salt, divided
- ½ teaspoon ground pepper, divided

- 2 tablespoons grapeseed oil or canola oil
- 4 cloves garlic, crushed
- 5 sprigs fresh thyme
- 3 sprigs fresh sage
- 1 sprig fresh rosemary
- 16 cups chopped escarole (about 1 pound)

1. Sprinkle steak with ¼ teaspoon each salt and pepper. Heat a large cast-iron skillet over medium-high heat. Add the steak and cook until charred on one side, about 3 minutes. Turn the steak over and add oil, garlic, thyme, sage and rosemary. Cook, stirring the herbs occasionally, until an instant-read thermometer inserted in the thickest part of the steak reaches 125°F for

medium-rare, 3 to 4 minutes.

Transfer the steak to a plate and top with the garlic and herbs. Tent with foil.

2. Add escarole and the remaining ¼ teaspoon each salt and pepper to the pan. Cook, stirring often, until the escarole starts to wilt, about 2 minutes. Thinly slice the steak and serve with the escarole and crispy herbs.

SERVES 4. SERVING SIZE 3 OZ. MEAT, ½ CUP ESCAROLE, ½ TBSP HERBS. **PER SERVING: CALORIES** 244; **PROTEIN** 25.5G, **CARBOHYDRATES** 10G; **DIETARY FIBER** 8.2G; **SUGARS** 0.7G, **FAT** 11.8G; **SATURATED FAT** 2.5G; **CHOLESTEROL** 59.2MG, **VITAMIN A** 5606.1IU; **VITAMIN C** 18.6MG, **FOLATE** 373.3MCG; **CALCIUM** 160.1MG; **IRON** 3.7MG; **MAGNESIUM** 60.3MG; **POTASSIUM** 1110.5MG; **SODIUM** 393.6MG. **EXCHANGES** 1 STARCH, 2 VEGETABLE, 4 LEAN MEAT, 2 FAT



SOMETHING SWEET

These heart-healthy desserts will satisfy your sweet tooth while keeping up with your DASH Diet goals.

Plum Clafoutis

ACTIVE: 10 mins **TOTAL:** 55 mins
Clafoutis is a classic French dessert of fruit baked in thick custardlike batter. It often features cherries, but this healthy clafoutis recipe features plums. Feel free to experiment with other fruit if you'd like.

Unsalted butter for pan

- 4 large ripe plums (about 1½ pounds), pitted and quartered
- 4 large eggs, at room temperature
- 1¼ cups whole milk
- ½ cup granulated sugar
- ¼ cup whole-wheat flour
- ¼ cup whole-wheat pastry flour
- 1 teaspoon vanilla extract
- ½ teaspoon almond extract
- ¼ teaspoon kosher salt
- 1½ teaspoons confectioners' sugar

1. Preheat oven to 375°F. Grease a 9-inch pie pan with unsalted butter.
2. Arrange plums flesh-side up in the prepared pan, placing them as closely together as possible.

3. Combine eggs, milk, sugar, whole-wheat flour, pastry flour, vanilla, almond extract and salt in a large bowl. Whisk until smooth. Pour the batter over the plums.
4. Place the pie pan on a rimmed baking sheet and place in the oven. Bake until the custard is no longer loose in the center when jiggled and a knife inserted in the center comes out clean, 45 to 50 minutes.
5. Cool on a wire rack for 5 to 10 minutes (it will deflate as it cools) and then dust with confectioners' sugar. Serve warm or at room temperature.

EQUIPMENT 9-inch pie pan

SERVES 10. SERVING SIZE 1 SLICE.
PER SERVING: CALORIES 143, PROTEIN 5G; CARBOHYDRATES 23G, DIETARY FIBER 1G; SUGARS 19G, ADDED SUGAR 11G; FAT 4G; SATURATED FAT 2G, MONOUNSATURATED FAT 1G, POLYUNSATURATED FAT 1G; CHOLESTEROL 80MG; VITAMIN A 377IU; VITAMIN C 5MG, VITAMIN D 32IU; VITAMIN E 1IU; FOLATE 15MG; VITAMIN K 4MG; SODIUM 66MG; CALCIUM 51MG; IRON 1MG; MAGNESIUM 14MG; PHOSPHORUS 85MG; ZINC 1MG; OMEGA-6 FATTY ACID 1G; NIACIN EQUIVALENTS 1MG; SELENIUM 9MCG.







Vegan Chocolate-Dipped Frozen Banana Bites

ACTIVE: 30 mins

TOTAL: 2 hr 30 mins

These bite-size frosty morsels of frozen banana, peanut butter and vegan chocolate make a perfect low-calorie snack or easy dessert. These banana bites store well in the freezer, so make some ahead and keep them on hand for those moments you crave a taste of something sweet.

- 3 large bananas
- $\frac{1}{4}$ cup natural peanut butter (chunky or smooth)
- $\frac{1}{4}$ cup vegan chocolate chips

1. Cut each peeled banana in half lengthwise. Spread each half with peanut butter. Place the banana halves together to make “sandwiches.” Cut each “sandwich” into eight rounds. Place the banana bites on a parchment paper or wax paper-lined baking sheet or tray and freeze for at least 2 hours or overnight.
2. Place chocolate chips in a

microwave-safe bowl and microwave on High, in 15-second increments, until melted (1 to 1½ minutes total). Dip half of each frozen banana bite in the chocolate. Let stand until the chocolate is set. If not serving immediately, return to the freezer.

SERVES 24. SERVING SIZE 1 BANANA BITE. PER SERVING: CALORIES 58, PROTEIN 1G; CARBOHYDRATES 77G; DIETARY FIBER 0.9G; SUGARS 5G; FAT 3G; SATURATED FAT 1.2G; VITAMIN A 10 9IU; VITAMIN C 1.5MG, FOLATE 4.1MCG; CALCIUM 2.5MG; IRON 0.2MG; MAGNESIUM 10.6MG; SODIUM 9.5MG; ADDED SUGAR 2G. EXCHANGES $\frac{1}{2}$ FAT, $\frac{1}{2}$ FRUIT



Mini Frozen Yogurt Parfaits

ACTIVE: 15 mins

TOTAL: 4 hrs 15 mins

These mini yogurt parfaits are the perfect sweet treat. You can use raspberries, blueberries or strawberries in these bites.

1 tablespoon pure maple syrup

1 cup low-fat plain Greek yogurt

½ cup granola

14 berries, such as raspberries or blackberries

1. Stir maple syrup into yogurt. Divide the yogurt among slots of a 14-well ice cube tray. Sprinkle with granola, then press a berry onto each one. Freeze until frozen, at least 4 hours.

EQUIPMENT 14-well ice cube tray

SERVES 14. SERVING SIZE 1 PIECE.

PER SERVING: CALORIES 38; **PROTEIN** 2G, **CARBOHYDRATES** 4G; **DIETARY FIBER** 1G, **SUGARS** 2G; **ADDED SUGAR** 1G; **FAT** 1G, **CHOLESTEROL** 1MG; **SODIUM** 7MG



TO MAKE AHEAD:
REFRIGERATE,
UNGARNISHED,
FOR UP TO 3 DAYS;
ADD FRUIT JUST
BEFORE SERVING

Mini Vegan Chocolate Tarts

ACTIVE: 15 mins

TOTAL: 1 hr 15 mins

These mini chocolate tarts make for the perfect afternoon baking project. We use the microwave to melt chocolate and coconut milk into a simple ganache filling.

1 2-oz. package frozen phyllo shells (15 shells)

6 tablespoons vegan dark chocolate chips
 $\frac{1}{4}$ cup unsweetened coconut milk
Mixed fruit for garnish

1. Preheat oven to 350°F.
2. Arrange phyllo cups on a large rimmed baking sheet. Bake until crisp, 3 to 5 minutes.
3. Meanwhile, place chocolate chips and coconut milk in a

medium microwave-safe bowl. Microwave on Medium for 1 minute 15 seconds.

4. Fill each phyllo cup with the chocolate mixture and garnish with fruit, if desired. Refrigerate until firm, about 1 hour.

SERVES 15. SERVING SIZE 1 TART
PER SERVING: CALORIES 52,
CARBOHYDRATES 5G; DIETARY FIBER 1G;
SUGARS 2G; ADDED SUGAR 2G; FAT 4G,
SATURATED FAT 2G; SODIUM 20MG.

EatingWell

DASH Diet

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Celebrating Carbs

Everyone needs carbohydrates—they're your body's preferred source of energy. Digested faster than protein and fat, they give your brain and muscles needed fuel so you can think and move. Foods rich in soluble fiber—the kind found in complex carbohydrates can help lower your LDL or "bad" cholesterol. The average American only eats about 15 grams of fiber per day, so eating 25 to 35 grams of fiber per day may help you maintain a healthy weight. Whole grains like quinoa, farro, amaranth, barley, soba noodles and whole-wheat pasta (like tagliatelle, seen above) are complex carbohydrates that fill you up with fiber and deliver extra vitamins and minerals.



Protect Your Heart

DASH—Dietary Approaches to Stop Hypertension—is a diet that doctors recommend to lower blood pressure and reduce strain on the heart. It's also delicious and satisfying, which is why it's so popular. These thoughtful, research-backed stories show how to simply and tastily thrive with the DASH diet in your life.

